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## A Statistical Study of the Location of Dental Caries Shows the Practical Value of Prophylactic Odontotomy\*

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Many writers claim that the environment and certain regions of the mouth are the important factors in dental caries, and that "no tooth would decay in a non-carious environment."\*\* A statistical study of the location of carious cavities tends to show that the shape or the conformation of the enamel cap is the most important factor in decay. The external environment of the tooth or its position in certain regions of the mouth plays a very small and unimportant part in the etiology of dental caries, when compared with the presence or absence of pits and fissures.

What is the shape or conformation of the enamel which tends to make certain surfaces of the tooth more susceptible to decay? By reason of causes as yet not thoroughly understood it is thought that faulty nutrition or imperfect function of certain glands during the period of tooth formation brings about an incomplete coalescence of the enamel lobes. This incomplete coalescence of the enamel lobes leaves faults or fissures in certain surfaces of the tooth.

A fissure is an opening in the enamel. This opening is a vulnerable or weak spot. Its presence makes this place susceptible and liable to decay, no matter how well or strong the individual may be. It is impossible to keep these fissures clean and they are always potential centers of decay. It is therefore quite logical to maintain that fissures are the *primary* cause for the susceptibility of certain surfaces of the teeth to caries. Constitutional conditions, environments, or certain regions of the mouth play a secondary and less important part in the decay of erupted teeth.

There are very few defects in the enamel of mesial or distal surfaces of molars or bicuspid, and interproximal caries is so seldom

\* Read before the Odontological Society of Western Pennsylvania at Pittsburgh, Pa., November 30, 1927.

\*\* *The Dental Cosmos*, December, 1925, page 1229.

found in these teeth, *unassociated* with decay in pits or fissures, that a careful student is compelled to believe that interproximal caries in molars or bicuspsids will rarely start when pits and fissures are protected and decay is prevented from entering the dentin through them.

Leaving out compound fillings, because we have no positive knowledge in which surface decay first started, and studying single cavities or fillings only, we find in a group of 3,000 persons of all ages that the following table gives the percentage of caries as found in the different surfaces of defective first molars. Missing and non-carious teeth have been excluded.

PERCENTAGE OF CARIES FOUND IN DIFFERENT SURFACES OF FIRST  
MOLARS IN 3,000 PERSONS

	Upper Right	Upper Left	Lower Right	Lower Left
Occlusal with mesial or distal or both..	9.00%	7.00%	8.00%	6.00%
Occlusal without mesial or distal.....	65.00%	68.00%	57.00%	59.00%
Mesial alone .....	1.00%	1.00%	0.45%	0.30%
Distal alone .....	0.32%	0.10%	0.38%	0.23%

FOR THOSE UNDER 30 YEARS OF AGE

Occlusal with mesial or distal or both..	9.31%	6.90%	8.00%	6.40%
Occlusal without mesial or distal.....	65.48%	69.00%	57.00%	50.00%
Mesial alone .....	0.91%	1.00%	4.00%	3.00%
Distal alone .....	0.34%	0.05%	0.30%	0.10%

FOR THOSE OVER 30 YEARS OF AGE

Occlusal with mesial or distal or both..	10.00%	11.00%	5.55%	8.00%
Occlusal without mesial or distal.....	45.00%	42.00%	54.00%	45.00%
Mesial alone .....	1.00%	.....	.....	.....
Distal alone .....	.....	1.20%	2.00%	2.00%

It is necessary for us to distinguish and to separate the procedures advocated for the production of better-shaped and better-structured teeth *before* their eruption from those procedures which are advocated for the protection of non-carious teeth *after* their eruption. These procedures do not conflict; they complement each other. When 100% success has *not* been obtained in the production of perfectly formed teeth *before* their eruption, prophylactic odontotomy teaches us what can be done to protect these teeth *after* their eruption. The greatest value of prophylactic odontotomy is the fact that it will protect the dentin and the pulp from the destruction of bacterial acidity and infection. Protect the pulp and dentin from the influence of decay, and this will help to maintain the normal resistance of the tooth against the dangers of its environments.

It has never been advocated, nor yet believed, that prophylactic odontotomy could supplant or even replace those procedures which give attention to prenatal care and the formative period of tooth-building.

"The inability of teeth to repair defects in the enamel and the

common occurrence of imperfections in this protective covering, especially of the molars, are conditions that justify the removal of the deficient portion of the enamel and its artificial replacement by adequate filling procedures very soon after the eruption of a tooth, *before decay can begin, or, gaining headway, can spread to adjacent perfect tissue*. Prompt acceptance of the theoretical inevitableness in this undesirable initial condition when it occurs, which usually involves the sacrifice of only a very small portion of the superficial tissue that otherwise would soon be lost by decay, enables the alert dentist to prevent the passage of caries through this imperfect enamel and thus to protect the health and prolong the usefulness of the tooth for many years (*prophylactic odontotomy*). For children having defective enamel—and few escape—the practical importance of this procedure of *cutting the tooth* for the prompt prevention of caries or of the extension of initial decay cannot be overestimated.”\*

A study of the ratio of decay of the different surfaces of the teeth will show us where decay is most frequent. It will show also the locations where decay is seldom found. A study of the formation of the enamel of these surfaces will help us to understand why the ratio of decay is greater in some places than in others.

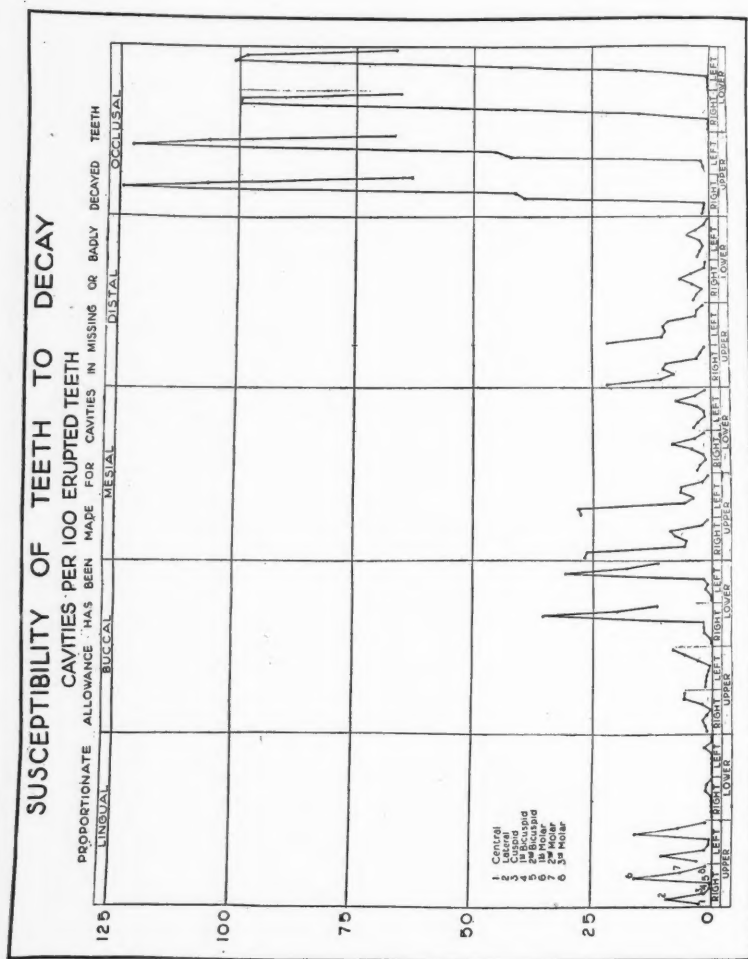
When in addition to figures a chart or graph is made which illustrates these figures, the significance of the *facts* presented is better understood. The realization of what these facts show will enable us to learn how we may best combat or prevent dental caries.

The figures used in the accompanying graph have been obtained from the records of the examination of 2,943 young men and women between the ages of 16 and 25 who are, or who were, employed in the Home Office of the Metropolitan Life Insurance Company. These examinations are made by dentists and dental hygienists, all of whom received special training for this work. It should be remembered that these figures are *facts*, and not opinions nor impressions received while making clinical observations. All conditions found in the mouth are recorded: the kind and location of all fillings; the location of carious cavities; teeth missing or crowned; bridges, plates and unerupted teeth; as well as septic condition of the mouth, degree of cleanliness, etc., etc. At the suggestion of Professor C. F. Bodecker of Columbia University twenty of the leading dentists in New York have visited this clinic and have tested and found the recorded examinations to be most accurate. Until our Statistical Department compiles these records and reports to me their findings, I have no idea what the figures will be. Many are the times that I have been both astonished and quite doubtful, but

\*The Carnegie Foundation for the Advancement of Teaching—*Dental Education in the United States and Canada*, Bulletin No. 19, 1926, page 166.

weeks and weeks of reinvestigations have always proved the accuracy of the figures given.

Teeth that are recorded as badly decayed are those which are unfilled and have three surfaces included in one cavity, or in which



the cavity is so large as to involve the pulp. Missing teeth, roots, and badly decayed teeth have been credited by our statisticians with the number of cavities appropriate to their particular class as determined on the existing teeth of that class.



This graph shows the average number of carious cavities\* found in every 100 erupted teeth of the same kind. It shows also the location of decay. Thus we find that in every 100 upper right centrals of the 2,943 persons examined there are:

- 26.63 carious cavities in the mesial side.
- 21.97 carious cavities in the distal side.
- 2.41 carious cavities in the lingual side.
- 1.49 carious cavities in the buccal side.

The term *buccal* has been used exclusively to designate both the buccal and the labial surfaces of all the teeth.

It is interesting to note the great similarity in the ratio of decay for the same surface of each tooth on the right side with the same surface of the corresponding tooth on the left side. In some cases there is a slight approximation in the ratio of decay between the surface of the upper and the corresponding surface of the lower tooth. This is not so apparent, however, as is the similarity between the same surfaces of the corresponding teeth on the right and left sides.

A study of the occlusal susceptibility of the bicuspid teeth is both interesting and illuminating. The difference between the number of carious cavities in the upper and lower second bicuspid is not very large, as the following table will show:

AVERAGE NUMBER OF OCCLUSAL CAVITIES IN EVERY 100 SECOND  
BICUSPIDS AS FOUND IN 2,943 PERSONS

Upper right.....	23.10
Lower right.....	26.40
Upper left .....	26.25
Lower left .....	26.71

The difference, however, between the occlusal susceptibility of the upper and lower first bicuspid is very marked.

AVERAGE NUMBER OF OCCLUSAL CARIOUS CAVITIES IN EVERY 100 FIRST  
BICUSPIDS AS FOUND IN 2,943 PERSONS

Upper right.....	21.12
Lower right.....	9.67
Upper left .....	21.81
Lower left .....	9.65

We cannot help but notice that the occlusal susceptibility of the upper and lower second bicuspid and upper first bicuspid is very similar. With the lower first bicuspid it is very much less. Why is this? Is there something radically different about the region of the

\* All fillings are included as carious cavities.

lower first bicuspid and the region of all the other bicuspid? I ask this question because, as stated in the first paragraph of this paper, many writers claim that certain regions of the mouth are the important factors in dental caries, and that "no tooth would decay in a non-carious environment." Is the distance between the first and the second lower bicuspid so great that the environment of the lower second bicuspid is a carious environment and the environment of the lower first bicuspid is a "non-carious environment"? We find the average number of carious cavities in every 100 lower left second bicuspid is 26.71, but only 9.65 for the lower first bicuspid. Has gravity anything to do with the efficiency of the bacterial activity or bacterial acidity? This can hardly be, because we find the average number of carious cavities practically the same for the upper and lower left second bicuspid. The upper has 26.25, and the lower 26.71. Then why this vast difference between lower first bicuspid and other bicuspid?

Regional location does not explain it, as all these teeth are closely grouped together in the same region of the mouth. Environment does not explain it, for surely the line of demarcation cannot be so abrupt as to place one tooth on one side of this line and the next tooth on the other side. If, however, the line of demarcation can be so clearly defined, then it will be necessary to have it horizontal as well as perpendicular. Even this will not explain caries in other parts of other teeth. However, a study of the formation of the enamel of the occlusal surfaces of these teeth will clearly give the desired information and also the explanation.

The buccal and lingual cusps of both the upper and the lower second bicuspid and the upper first bicuspid are very much the same in shape and size. Should there be any imperfections in the coalescence of the enamel rods along the developmental groove, there will be fissures at the bottom of this groove. These fissures are openings in the enamel and they will lie between and at the base of the cusps, with the inclined planes of the cusps converging to a common central line. The act of mastication will force food debris into these openings. These fissures, though small and often difficult to detect, are large enough to admit and to retain in undisturbed protection countless millions of bacteria.\* While the number of bacteria which can be retained within these small places is large, the *number* itself is not the important fact. We understand, of course, that in the larger number there will be found a greater variety, with the possibility of more virulent ones being present. The important thing, however, is the fact that it is only when the bacteria can be retained for many months in one place

\* See *Dental Items of Interest*, November, 1926, page 797.

*undisturbed* that an acid is then produced which is sufficiently strong to break down the structure of the tooth. The free acids of the mouth and the free bacteria of the mouth have never produced dental caries. The free bacteria found in clean mouths are to all intents and purposes harmless, as far as caries of the teeth is concerned.

We are taught that a clean tooth cannot decay. Can we keep these fissures clean when a single bristle of a toothbrush is many times wider than the opening of a fissure? Is there any dentifrice which will penetrate these openings to the dento-enamel junction and remove these bacteria without damage to the enamel or the dentin? We are taught that it is necessary for the bacterial plaque to remain undisturbed to bring about dental caries. In the protection and security of these pits and fissures what can disturb these bacteria or prevent their success in their special work? Is it not this fact which explains the high ratio of decay in surfaces which have fissures? But why is the average so much less in the occlusal surface of the lower first bicuspid? The answer again is found in a study of its shape and form. The buccal cusp of the lower first bicuspid is almost the same size and shape as those of the other bicuspids. The lingual cusp, however, of the lower first bicuspid is very small, and there is an easier migration of foods from its surface. Fissures in the enamel of the occlusal surface of lower first bicuspids are not so frequent as in the other bicuspids, and there is less opportunity for the undisturbed retention of bacterial plaques.

While the ratio of carious cavities in the buccal surfaces of both the lower first molars is nearly equal, there is a marked difference between the number of carious cavities in the buccal surfaces of the upper and lower first molars.

AVERAGE NUMBER OF BUCCAL CARIOUS CAVITIES IN EVERY 100 FIRST  
MOLARS AS FOUND IN 2,943 PERSONS

Upper right.....	2.03
Lower right.....	35.30
Upper left .....	3.00
Lower left .....	30.70

Once more we ask—can the theory of the regions of the mouth explain this difference? Are the environments of the upper first molars so different from the environments of the lower first molars that this will explain why the buccal surfaces of lower first molars have a larger number of carious cavities than the upper?

If we study the lingual susceptibility of these molars, we find that the figures are reversed, and that it is not the lower molars which are more susceptible but the upper ones.

AVERAGE NUMBER OF LINGUAL CARIOUS CAVITIES IN EVERY 100 FIRST  
MOLARS AS FOUND IN 2,943 PERSONS

Upper right.....	16.26
Lower right.....	1.31
Upper left .....	16.26
Lower left .....	1.76

Can the lingual region of these upper molars be a carious environment, while on the buccal side the region is a "non-carious environment"? If this is so, how can we explain why the peculiarities of these regions are reversed for the lower teeth and the "non-carious environment" is now on the lingual side and the carious environment is on the buccal side? Is it possible to subdivide the regions of the mouth into such small sections that the lingual surface of one tooth will be in a "non-carious environment" and the lingual surface of the next tooth will be in a carious environment? Is it possible to imagine that the environment can be so dangerous on one side of a tooth that this surface will succumb to caries, while the surface on the other side of the same tooth is within a "non-carious environment" and will not decay? Can we more easily brush the buccal side of upper molars and the lingual side of lower molars and find that this is the reason why less caries is here than on the other side of these teeth?

The reason why a study of the shape and formation of the enamel of these surfaces and a study of the statistical findings of caries-susceptibility give us a logical and a scientific explanation for the phenomenon of decay is because these studies are based on facts and not on impressions. In the buccal groove of the lower molars pits are frequently found with cracks, flaws or fissures at their base. The location of the mesio-buccal cusp of the upper first molar causes it to close over the buccal pit in the lower molar and thus food debris is forced into these openings. Such places cannot be kept clean. Bacterial plaques will form and remain undisturbed in these enamel defects. Decay will then commence in these areas.

Wherever we find a difference in the ratio of caries-susceptibility of corresponding surfaces, the facts will show that there is a difference in the formation of the enamel of these surfaces. Where the susceptibility is high, we find retentive places for undisturbed bacterial plaques. Where the susceptibility is low, we find surfaces where it is difficult for the bacterial plaques to remain long undisturbed. An excellent example of this is seen in the difference of enamel formation of the lingual surfaces of upper and lower laterals.

The lingual surface of lower laterals is smooth and well formed. No pits nor fissures are found here. Even in dirty mouths, or in

mouths rampant with decay elsewhere, the lingual surfaces of these teeth remain immune and free from caries. Not so with upper laterals. Here are found pits and sometimes fissured grooves in the lingual surface, and here is found a higher average of caries than in the lower laterals.

We believe that the formation of these fissures is due to malnutrition or functional disturbances during the building of the tooth before its eruption. After the eruption of the tooth no diet can change the form or shape of fissures. No mouth hygiene can protect these places against the destruction of bacteria. Once the bacterial plaque is safely lodged within these openings, decay will surely follow. We know that caries in these places makes its progress along the dento-enamel junction.

We know that the influence of decay penetrates into the dentin far beyond all visible evidences of its presence. We know that there may be no external clinical evidence of its progress until the decay has made great inroads toward the vital pulp. Knowing all of this, can we not recognize the importance of giving the earliest attention to these places before decay can start? Can we not see that dental statistics will help us to combat dental caries intelligently by directing our attention to those places where in the past we have constantly lost our battles? Does not this knowledge hold for us a promise of greater success in the field of prevention? Then let us be united in our war on dental caries and close all these small openings before decay can start.

1 Madison Avenue.



## The Localization of Foreign Bodies in the Oral Cavity\*

By S. W. A. Franken, D.D.S., New York, N. Y.

The methods generally employed in the localization and removal of foreign bodies in the oral cavity have been very indefinite as to technic and have caused a great deal of unnecessary destruction of tissue. The operator usually keeps on cutting until the object is reached.

It is necessary to work from definite landmarks, and if these landmarks are absent, they must be created. The instruments necessary to do this are a pair of sharp-pointed dividers, such as are used in draughting, and a variety of staples and tacks that may be secured at any hardware store.

A roentgenogram is taken of the area containing the object to be removed and, if possible, some permanent, undistorted landmark such as a tooth or an inlay is taken as a starting-point. The distance from the landmark to the object is measured on the film with the dividers, which are then locked. The mucous membrane is swabbed with alcohol, and novocain is administered. The points of the dividers are dipped in iodine, and one of these points is held on the landmark and the other is placed as near as possible to the foreign body, with the film as a guide. The sharp point is then pushed into the mucous membrane and withdrawn. This leaves a small circle of iodine with a pin point in its center.

A suitably sized staple is dipped into iodine, and the points are forced into the mucous membrane so that they straddle the first puncture. A long wire is attached to the staple to prevent aspirating it. A roentgenogram is taken and developed immediately. This will show the relationship of the foreign body to each end of the staple.

When it is seen that the foreign body is between the points of the staple or in close proximity to them, it is a simple matter to cut down on the object and remove it. The time lost in taking and developing the roentgenograms is more than made up by the ease and quickness of the operative procedure and by the minimum of trauma necessary.

When the mouth is edentulous, it is often possible to take some anatomical landmark as a starting-point, such as the internal oblique line. Otherwise the first insertion of the staple is used as a starting-point.

The technic is valuable in the following cases:

1. Broken apices, especially when extraction was attempted, per-

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\* From a clinic before the First District Dental Society, New York, December 7, 1927.

haps years previously, and when the socket is closed with alveolar process.

2. Granulomas that remain after extraction.
3. Small cysts.
4. Sacs or portions of infected peridental membrane remaining after the tooth has been extracted.
5. Pericemental granulomas between teeth when extraction is contra-indicated, but when the removal of the infected portion is desired.
6. Pieces of gutta-percha forced through the apex or through a perforation during root filling and left in the process after extraction.
7. Apicoectomy, to locate the exact area at which the amputation is to be made, and to avoid going above or below the point of selection.
8. Broken broaches forced through the apex during root-canal treatment and left after extraction.
9. Needles broken during infiltration or conduction anesthesia.
10. Broken roots or apices under prosthetic appliances, so that they may be removed in such way as not to ruin the appliance.
11. Roots in the antrum.
12. Foreign bodies in general that may be in and about the jaws.

#### CASE 1

*Localization and Removal of Root Fragments with Use of Staples.*  
*Miss B. G., 44 years old.*

*History.*—Upper right bicuspid extracted in Greece about two years ago. Extraction was performed with great difficulty on account of continual breaking of roots.

X-ray taken October 20, 1926, disclosed retained apex of upper right first bicuspid and root fragment of upper right second bicuspid, but no bone formation (Fig. 1). A plate had been constructed over this area, which gave the appearance of being thoroughly healed.



Fig. 1



*Operation.*—November 1, 1926, novocain infiltration anesthesia. Staple inserted according to original film and x-rayed (Fig. 2). Upper arm was seen to be  $\frac{1}{4}$ -inch or more away from the apex of the first bicuspid. Staple removed and replaced about  $\frac{1}{4}$ -inch mesially (Fig. 3), according to this x-ray. Second x-ray taken, which showed the apex to be directly beneath the upper arm.

Staple withdrawn, and small circular incision about  $\frac{1}{4}$ -inch in length was made. First incision made at 2:43 P. M. On account of

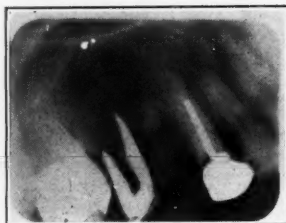


Fig. 2



Fig. 3

difficulty in retracting lip it was rather hard to chisel. However, at 2:47 $\frac{1}{2}$  P. M. the fragment was disclosed (4 $\frac{1}{2}$  min.) and removed at 2:48 P. M. Total time—5 minutes.

On account of difference in situation between the first and second bicuspid fragments another incision was made, according to the x-ray, at the lower arm of the staple and slightly distal to it. This was done at 2:50 P. M.; root was encountered and out in 50 seconds.

The x-rays also showed a large area where there was no bone, and this was entered by a direct incision from the alveolar margin. As soon as the mucous membrane was cut, the lance almost fell into a large cavity. This was thoroughly curetted. Iodin swab, and orthoform and iodoform insufflation.

Two sutures were inserted in the incision made for the fragment of the first bicuspid. The other was left free.

## CASE 2

*Localization of Cyst with Staple. Miss J. D., 55 years old.*

X-ray film showed suspicious area in site of extracted upper right lateral incisor (Fig. 4). Behind this there was a trailing off and enlarged, infected-looking trabeculae.

*Operation.*—December 15, 1927, novocain infiltration. Localized with staple (Fig. 5), and made small flap between arms of staple and



Fig. 4

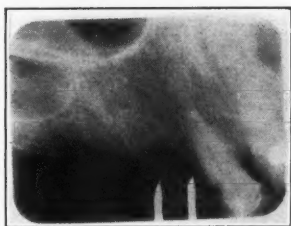


Fig. 5

found a membrane bulging through the external plate of the alveolar process. Opening was gently enlarged and parchmentlike bone removed. Enucleated fully formed cyst. Continued opening posteriorly and found a maze of cheese like trabeculae, and the blood flowing was filled with fatty globules resembling cholesterol. Burs and curettes were used on this area until firm bone was encountered. Swabbed with iodine, two sutures, and packing inserted to keep site of cyst open.

*Comment.*—The cyst removed was about the size of a green pea, and upon cutting it open a small, irregular-shaped bleached spicule of process surrounded with purulent matter was found.

December 17, 1927, no edema, no pain and no discoloration. Irrigated and changed packing.

26 East 36th Street.

## Vincent's Angina

By H. F. Tavlin, D.D.S., Denton, Mont.

SOME CLINICAL OBSERVATIONS IN ANSWER TO LOUIS WACK, D.D.S.

I was much interested in Dr. Wack's article in the December, 1927, issue of *THE DENTAL DIGEST* relative to Vincent's angina. My remarks in answer to his paper are not in the spirit of criticism of what he has said nor am I advancing any definite mode of treatment of this unfortunate condition, but I am giving the result of my observations based upon 1,500 cases in a six months' period in the U. S. Public Service Hospital at Hot Springs, Arkansas.

The location of this hospital is such that it is a mecca for those who are unable to pay for treatment and for the general run of human derelicts whom we meet, and who are paying the penalty for the abuse of nature's laws. While syphilis primarily was treated here, it was no unusual condition to meet leprosy, granuloma inguinalia, psoriasis and other unusual conditions; in fact, almost every disease to which human flesh is heir.

Shortly after my internship in this hospital I noted the large number of cases of Vincent's with which I came in contact, and I became doubly interested in it because of the unusual surroundings and conditions under which I met it. One observation that I have particularly in mind is the fact that I believe Vincent's angina and syphilis are very closely allied. I have had any number of able men in the dental profession lightly remark, "If they have Vincent's, give them a shot of arsphenamine." Significant to relate, cases of Vincent's angina in this hospital did not manifest this condition until our patients were given their first shots of this drug. Prior to that time we did not find it. In a great many of these cases, in fact, in the majority of them, we came in contact with filthy, unclean mouths, but again, significant to relate, the patients who had clean mouths, and who made every effort to keep them that way, were just as often stricken with this condition. Upon examination of some 600 mouths, as a matter of record, we found 100% of them affected with this condition, though in a great many of them it seemed to be benign; that is, they were not suffering with an acute condition as is produced by Vincent's angina, although from the records we kept these 600 in their six weeks' course of treatment did develop eventually an acute attack.

I agree with Dr. Wack that Vincent's angina does attack the alveolar bone as well as the gum tissue, and that tissue so attacked is irrevocably lost. However, I have met with and proved from a bacteriological standpoint the presence of Vincent's angina in a seemingly acute attack, but where the usual manifestations were absent, that is, Vin-

cent's angina without pain or soreness, without ulcers, without its characteristic membrane, without bleeding, but almost universally a spongy, swollen condition of the gums was noticed. Again I have seen it with its usual manifestation of pain but without membrane or bleeding, and again without pain but with membrane and bleeding present. Rarely did I meet it without the characteristic membrane; in fact, the membrane seems to be a cardinal point of diagnosis. Again I have seen it very vicious and the patients in such terrific pain that we have had to give them morphine to quiet them.

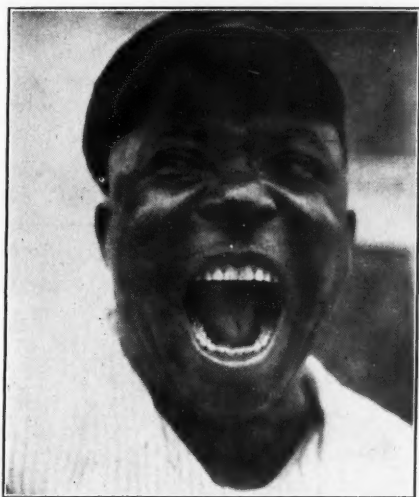


Fig. 1

Patient, a negro, aged 69, suffering from lues. Occupation chef, physical condition good. Chronic Vincent's, but no manifestation of pain, no bleeding, and without membrane. Microscopic examination showed vast amount of Vincent's spirilla and fusiform bacillus.

I do take very definite issue with Dr. Wack that Vincent's angina is preeminently a disease of youth. The fact of the matter is that it is no respecter of age and is more likely to strike those above the age of 35 than those under it. As an example I am enclosing the photograph of one of my patients in this hospital who was 69 years of age, and who without doubt had the most magnificent set of teeth with which I have ever come in contact. All were present, his mouth was wonderfully clean, and he kept it that way (Fig. 1). He was under treatment for syphilis and because of the splendid condition of the oral cavity I made a special study of his case. Incidentally I secured from him a history as to what care he had given his mouth in his early

days, and it was purely negative. By occupation he was a chef and in a splendid state of physical preservation, although in the tertiary stage of lues. I have seen this man crush a bone of a pork chop as easily as I would crush a piece of bread. He developed Vincent's angina without pain, bloodless and membraneless, but he evidenced decided sponginess in both arches, the result of the disease, and under the microscope it was clearly proved that he had it. His case was particularly hard to clear up, but finally did respond to a saturate solution of sodium perborate.

There seems to be a marked tendency to chronicity, so far as Vincent's angina is concerned, when coupled with syphilis. Whether or not Vincent's angina might be termed an off-shoot of syphilis I cannot say, but personally I certainly believe it is, although I will grant that I have seen cases of Vincent's angina where the Wassermann was negative. On the other hand, I have seen patient after patient under treatment for syphilis who gave themselves the best of attention, and who in spite of everything that was done would still remain 4+. But when we finally cleared up the Vincent's angina with which they were suffering, the 4+ condition was almost simultaneously relieved.

It might be interesting to note one particular case of this kind. Patient, male, aged 56, luetic, had been under treatment continuously, with but short breaks, for three years. His entire right side was paralyzed and despite all the treatment that had been given him he persistently remained 4+. This case had none of the manifestations of Vincent's angina. When he was finally presented to me for treatment, upon observation and examination I found twenty-four sound teeth in his mouth. The lower arch was in very good condition; the upper arch from cuspid to cuspid presented pus under pressure. There was no pain, no bleeding, no membrane, but upon microscopic examination of the pus vast numbers of Vincent's spirilla were clearly defined. He was treated locally with a saturate solution of sodium perborate and methylene blue, also arsphenamine, but to no avail. He persistently showed Vincent's angina, although, as above stated, without any of its manifestations. Finally, as a last resort, I extracted from cuspid to cuspid. The sockets healed very nicely and in three weeks from the time his teeth were extracted his Wassermann showed negative, with a marked improvement in his general physical condition. This is an example of what we term a chronic Vincent's angina, and one that I believe really exists a great deal more than we know anything about.

I must again disagree with Dr. Wack wherein he states that men seem more predisposed to it than women. I have found just as many women suffering from this condition as men, and I do not believe that smoking plays any part in weakening the tissue resistance. The matter of eating in restaurants and public eating places in general may be a

predisposing cause, but this I very much doubt, for Vincent's spirillum, like its twin, the spirochete, loses its virulent action when exposed to air or water. This fact also was demonstrated in this hospital.

That Vincent's angina is infectious I believe, though my attempts to infect with it were not very successful. This is especially true of an attempted infection by using the same knives, drinking glasses, etc. Whether by kissing this is more readily communicable I cannot say. It is rather hard to get patients to indulge in this practice publicly. Vincent's spirillum, as I noted it, was never found without its father, the fusiform bacillus. Always this club-shaped bacterium was present, and I am inclined to the opinion that Vincent's spirillum, as we speak of it, is simply an off-shoot of the fusiform bacillus.

In submitting this article I wish to reiterate my former statement that I am not advancing any theories nor attempting to criticize any statement as made by other men, but my personal experience with Vincent's angina has been so greatly different from the textbook pictures we have of it, together with the experiences that more able men in the profession have had with it, that I think it well worth while to state what I have seen. In my own mind I am thoroughly convinced that syphilis and Vincent's angina go hand in hand and form a very vicious cycle, and also I do believe most sincerely that there is a chronic form of Vincent's angina.

In conclusion, I wish to acknowledge my deep indebtedness to Dr. Herman Proske of the Government Hospital at Hot Springs for his learned assistance and help in studying these conditions.

Denton State Bank Building.



[NATURAL PERFECTION UNRIVALED]

*Nature usually provides biologic, anatomic and physiologic perfection. Art never does, but is at best only an imitation, and most times a poor one, particularly as applied to the restoration of normal, functional activities.*

—GOSLEE.

## The Rise and Fall of Oral Hygiene in Bridgeport

By George Wood Clapp, D.D.S., New York

### FOURTH ARTICLE

#### THE BEGINNING OF ORAL HYGIENE ON A COMMUNITY SCALE

When school opened in September, 1914, the eight hygienists who had been trained during the summer were ready to begin work for the children, under the immediate direction of the two supervisors.

All the time that Dr. Fones was urging the establishment of an oral hygiene clinic, he stressed the importance of prevention rather than of repair. When actual work began, he remained true to this ideal.

It was not his expectation at the beginning of the work that there would be a startling reduction in dental decay, but it was felt that if the mouths of five classes of children, as one after another they entered the school system through the door of the first grade, could receive prophylactic treatment, and if the children were properly instructed, the pernicious conditions then common in the mouths of school children would be avoided. This should be cheaper in money and better in every way than to allow the conditions to occur and be neglected or corrected by either private or public service. To establish such a superiority in favor of prevention, a careful record was made of the conditions of the mouths of the children then in the fifth grade, and this record was to be used as a *control* with which the records of the classes receiving prophylaxis could be compared.

#### GENERAL PLAN OF THE WORK

A very important feature of the work was that the service was to be carried to the children as part of the school system rather than by making an effort to carry the children to the service at some centrally located clinic. Even very young children soon learn that they have no better friend than the school teacher, and that they may take on trust whatever she recommends. All the children in a building soon become accustomed to the hygienist, nothing unfortunate happens to those who visit her, and the fear of the unknown thing soon passes away.

There were four distinct parts to the program, as follows:

- (1) Cleaning and polishing the teeth, and making two charts of the mouth conditions, one to go to the parents, the other to be filed. This was done by the hygienist in the clinic temporarily established in the school building.

- (2) Classroom talks by the supervisors on food, cleanliness,



etc.; also toothbrush drills, to make sure that the children understood how the brush should be used at home.

- (3) Stereopticon lectures for the older children.
- (4) Educational literature for the parents.

It will be seen from this brief outline that three-quarters of the work was educational. It was intended to instruct the child in his own protection and to enlighten the parents so that the responsibility for the physical welfare of the child could finally be placed where it must necessarily rest, that is, in the home.

The equipment used and the methods of sterilization were well described by Mrs. Hubert Hart somewhat as follows:

Each hygienist was furnished with a portable dental chair and a stool; a small, high table, with shelves and a drawer that locked; a dental engine, and the necessary supplies.

She purchased her instruments, porte-polishers, mouth mirror, explorer, cheek-distender, scalers, bulb syringe, tweezers, and mandrel for rubber cups. Duplicate sets of instruments were supplied to each girl as required by the method of sterilization.

As no school had hot water and few had gas or electricity, instruments were sterilized by scrubbing with a small brush, soap and running water, drying on clean gauze, and placing in denatured alcohol for from 20 to 30 minutes.

Glass was used for all receptacles, and, to minimize cost, household articles were utilized as far as possible. For instance, spools of dental floss were put into glass salt cellars with the floss threaded through the top of the shaker.

Water for use in the mouth was heated in small aluminum pans by the use of solidified alcohol.

When being moved from school to school, all the small articles were put into the table drawers and locked, and a medium-sized wooden soap-box accommodated all the others. So well was the outfit planned that it could be set up in thirty minutes ready for work.

#### HOW THE WORK WAS DONE

In most of the schools the principal or the primary teachers gave the children wise and interesting talks before the hygienists arrived and thus stimulated a good deal of enthusiasm for their service. There were generally two hygienists to a school. Volunteers were called for as the first patients. After they returned pleased and smiling, there was no trouble, and the teachers sent two children at a time as two returned to the room. This interrupted class work as little as possible.

The teachers rendered valuable aid by giving each child, as he left

the room, a slip bearing his name, age and address. This was most useful in making out the charts, a temporary chart to be sent to the child's home and a permanent one to be filed.

When the child was seated, the chair properly adjusted and a bib in place, the mouth was carefully examined and the temporary chart was made out. A pledget of cotton soaked with tincture of iodine was passed over the labial or the buccal surfaces of two or three teeth at a time, which were usually fairly well covered with green or brown stain. These were cleaned by the use of the engine and rubber cup for the first treatment only, and the process was repeated around the mouth. All the other surfaces were polished with porte-polishers and finely powdered pumice. Dental floss was used between the teeth, and the gums were bathed in phenol sodique. The first treatment required from 30 to 50 minutes, subsequent treatments about 30 minutes each.

Each first-grade child received four treatments during the school year, and each second-grade child two treatments. This service was rendered to all children alike, regardless of the financial status of the parents, from whom there was very little objection. It appears that the hygienists used great tact in winning over parents who at first did not understand nor appreciate. From the very beginning a few parents had the child's teeth filled by their own dentists as per the examination chart, and the number grew as understanding was extended.

#### TOOTHBRUSH DRILLS

Toothbrush drills are of an importance which does not sufficiently impress itself upon many persons. They were one of the effective means of reaching back into the home. Toothbrushes were supplied to children at five cents each; those who could not buy got them free.

One of Miss House's interesting comments on these drills is that if the child's hands were not fit to handle the brush, he was sent from the room to wash them. We can imagine that some rooms must have been nearly empty at times.

A five-minute talk was given by the supervisor on the importance of a toothbrush being used only by its owner, and why and when teeth should be brushed. The necessity of individual ownership is illustrated by the fact that one brush was sometimes made to serve for several members of a family.

Evidently the desire for brushes spread with great force to higher grades, because some boys broke into the storeroom and stole twenty-four of them, giving them to the children who knew no other way of getting them. The children kept their brushes surprisingly well. On the second visit to one school, in the fall of 1914, 160 of the smallest children were asked to bring their brushes and only six failed to do so.



Perhaps even more important than the prophylactic service was the instruction given in classrooms in the use of the toothbrush, as well as the very clever and persuasive methods employed by the teachers to inculcate the habit of daily brushing.

#### COOPERATION BY TEACHERS

It is evident at a glance that no hygienist could go into a school and operate a clinic of this sort without the cooperation of the principal and the teachers, and that, other things being equal, the success would be largely determined by the kind and extent of that cooperation. To the credit of the teaching body in the Bridgeport schools, be it said that the cooperation was whole-hearted and complete. These teachers knew, perhaps better than any one else, that their work was being made doubly hard by the physical handicaps from which many of the children were suffering, and which made it impossible for them to attend school or, if they were present, so distracted their attention that they could not learn what the teacher was trying so hard to impart. I once heard General John B. Gordon deliver a lecture while suffering severely from an exposed pulp and had the pleasure of relieving his pain afterward. No one would have suspected that pain from anything that happened during the lecture, but not many of us are Gordons, and certainly those children could not be expected to be.

And so, when Dr. Fones and a supervisor called on a principal of a school a few days before a hygienist was due there and explained the nature of the service, they found a readiness to cooperate in doing the things that educators generally are now stressing as a necessity, that is, getting the child's body ready to be taught.

The clinic was located wherever it was most convenient, so that the light was good and running water was not too far away. Mrs. Hart gives some of the following locations—basements, when light and dry; deep landings; tutors' rooms; teachers' retiring rooms; unused school rooms; cloak rooms; wide corridors. Two principals gave up their own offices and had their desks moved out so that the hygienist might take advantage of the good light.

The cooperation of the teaching staff was by no means limited to the reception of Dr. Fones and the location of the hygienist. Many of the principals interested themselves personally in having the children brush their teeth every day. One principal bought a banner which was won each month by the room with the largest percentage of children faithful in the daily brushing. In many rooms a "score" was kept on the blackboard under the heading *Brushed Teeth*. In one school a child who persistently forgot the brushing was sent to the principal's office for reprimand.

Many of the teachers rendered most valuable assistance. They kept the "score", questioned the children between visits by the hygienists, and made sure that the instructions and prescribed method of brushing were understood.

#### A BROAD CONCEPTION OF PREVENTION

As has been said, when actual work began, Dr. Fones remained true to his ideal of prevention rather than repair, but his experience in the first year of school work led him to form a broader conception of what prevention must include to be effective than was common in the dental profession at that time or, indeed, is common now. He was impressed and depressed by the almost universal destruction of the temporary teeth of the children in the first grade. In some of these mouths the first permanent molars were through the gums, and in these teeth the hygienists frequently found imperfectly calcified pits and fissures. His belief that these teeth would be lost soon was justified by the fact that in the fifth grade there were very few such molars not seriously decayed. He knew also that if these pits and fissures could be filled, the teeth would be preserved, especially in view of the prophylactic service which all these children were to receive.

In September, 1915, Dr. Elizabeth Beatty, dentist, was added to the corps, equipped with a portable outfit and sent from school to school to fill, for children in the first grade, the first permanent molar fissures which the hygienists indicated. The fact that during the first year she filled more than 2000 such molars is proof of the great need for that service. In 1916 a second dentist was added to enlarge the same work, and later a third dentist.

In view of developments which were to occur later, it is interesting to observe the technic for filling such cavities. It was identical with that which Dr. Fones had followed for some years, and which he had perfected with the aid of Dr. Hermann Prinz. Two drops of a 1% solution of nitric acid were placed on a glass slab, and a small quantity of finely ground standard alloy was added. The alloy was covered with an equal quantity of powdered silver nitrate. The two powders were slowly mixed onto the solution by means of a stiff broach on which a few threads of cotton had been wound. This resulted in a thin black cream.

If one or more spots of defective calcification were found in the occlusal surface of a tooth, all the fissures in that occlusal surface were reamed out to their ends, and an effort was made to get out all visible decay. But decay from such a fissure often ramifies in ways difficult to trace and requiring much more time than these school dentists could give to one tooth. The cream just made was depended on to arrest any decay which could not be seen. The tooth was dried under the rubber dam or by means of cotton rolls, and the cream was painted over the bottom of the dry cavity with the swab that was used to mix it. When this was thoroughly dried with hot air, a little powder formed on top, which was removed with a cotton pellet. An amalgam filling with a cement lining was then placed. These fillings proved very effective for a long time. The loss of permanent molars by children receiving this service was almost completely stopped. The mandibles were held in approximately correct relations to the maxillae during the eruption of the other teeth, and the facial proportions were better preserved than they could otherwise have been.

This seems to have been the first effort to concentrate dental clinic attention on the preventive dentistry of the first permanent molars.

Prior to 1918, there was no central dental clinic to which cases requiring extraction or treatment of abscesses could be referred. It seems a little like a page out of the dark ages to realize that for these children, many of whose parents were too uninformed to know how to seek relief, no other course was open than to suffer the recurrent pain, sometimes for several days at a time. Dr. Fones made an arrangement with one of the young dentists of the city whereby some of the worst cases were referred to him for relief, but the limited funds available restricted the amount of such service to \$100.00 per year. This was merely a drop in an ocean of misery.

By 1918 the salvage of first permanent molars had progressed sufficiently so that the dentists could devote one day in every two weeks to the extraction of abscessed deciduous teeth for cases referred by the hygienists.

In 1918 the Central Dental Relief and Repair Clinic opened under the Commissioner of Public Clinics, where relief was obtainable.

#### APPRECIATION BY THE PARENTS

There were two classes of parents represented by the children in the schools, each in large numbers, from whom criticism and perhaps opposition might be anticipated: (1) the well-to-do, intelligent and fastidious, and (2) those of foreign birth, too little educated to understand American ideals or to care about physical cleanliness. Just as this is being written, an illustration of such criticism comes to light in the city where I live. A wealthy lady received from the school a notice that in one of her child's teeth there was a small cavity. She took the child to her dentist immediately, but was in verbal rebellion at what she deemed an impertinence to a person in her station in life. The dentist, with great wisdom, pointed out that she had not herself brought the child for examination, so that no one knew the cavity was there, that it was steadily growing larger, and that, thanks to the report, it was possible to fill it without discomfort before the "nerve" was threatened, and at small expense. If she has half as much wisdom as he showed, she will revise her attitude toward the school dental examination.

#### THE CHILDREN AS MISSIONARIES TO THE HOMES

From the beginning of the work of the first class of hygienists, in April, 1914, there was no difficulty in winning the whole-hearted support of the children, once they understood what was being done for them and they had a chance to experience the beginnings of the benefits.

One of the first patients of the first school corps was a Jewish boy with a terrible mouth. He was particularly bright and asked all sorts of questions. When he heard of the need for children for the girls to treat on Saturday mornings, he began a tour of the neighborhood to get the children to come. When the hygienists got to the clinic the next day, every chair was filled.

Mrs. Hart tells, in the article from which such liberal quotations have been made here, of seeing a small Italian boy sitting on the sidewalk at noon showing his teeth, which had been cleaned that morning, to six or eight men, who seemed delighted with the results.

So firmly were the principles of oral cleanliness impressed upon some young minds that when the preacher at a certain church visited the children's room and asked for verses from the Bible, one little girl, with the confidence that comes from assured knowledge, rose and in her clear treble repeated, "A clean tooth never decays."

(The Fifth Article will tell how, in rendering service to a group of 600 young men of the A. E. F., the hygienists demonstrated a truth which is likely to have great influence on the conduct of dentistry as it becomes better understood.)



## Oral Surgery In Practice

By James L. Zemsky, D.D.S., New York, N. Y.

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(Continued from March)

### NEOPLASMS

¶227. Removal of a bit of tumor tissue for the purpose of microscopic examination is very helpful in diagnosing a growth. When the specimen secured is a small, carefully selected portion of an accessible tumor, it seldom results in harm.

¶228. While the removal of a fibrous growth in the oral cavity must be complete, including all the tissues from which it springs, the radical removal of anatomic structures is unwise, being totally unnecessary. (See Figs. 220-221.)



Fig. 220

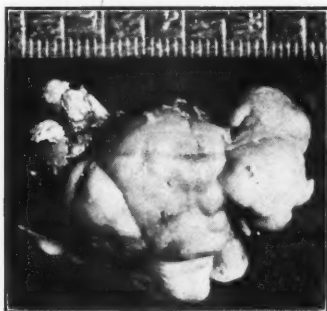


Fig. 221

Fig. 220

Photograph of a patient showing a large, smooth, lobulated growth in the maxilla. The tough and firm nature of the mass, which was of slow growth, suggested the diagnosis of a fibroma. (See ¶228.)

Fig. 221

The fibroma removed from the patient shown in Fig. 220. (See ¶228.)

¶229. Soft or lobulated growth on the gingivae which is cyanotic in appearance may at times be mistaken for an angioma. This, however, may be readily differentiated by the sense of touch. While this type of growth (Epulis) is a spongy structure, the angioma is a fluctuating mass. (See Figs. 222-223.)





Fig. 222

Photograph of a growth in a patient, 16 years old. This growth was a smooth, somewhat nodular tumor, soft and spongy to touch, and of a cyanotic dark-blue color. The downward growth almost completely covered the crowns of the teeth. Only the tips of the cusps were seen. (See ¶229.)



Fig. 223

Roentgenogram showing the condition of the bone beneath the tumor in Fig. 222. The radiolucent area between the canine and the first premolar indicates the destruction of bone in this region. The diastema between the teeth shows that the growth started between the canine and the first premolar. (See ¶229.)

¶230. Epulis may be successfully treated by surgical removal of the tumor mass together with the involved tissues. The periodontal membrane, as revealed by the roentgenogram, is usually affected. (See Fig. 224.)



Fig. 224

Photograph of a soft pedunculated mass on the gingiva in the region of the right mandibular premolars. It presents the appearance of an angioma, due to the large number of dilated blood-vessels and serous fluid filling the spaces between the delicate fibers comprising the tumor. This growth springs from the underlying tissues and, to prevent recurrence, must be removed by deep excision. The growth is a soft fibroma, which is quite frequently wrongly referred to as an epulis. (See ¶230.)

¶231. Boiling water repeatedly injected into an hemangioma will cause its obliteration without other surgical interference. (See Figs. 225-228.)



Fig. 225

Photograph of a boy, 14 years old, presenting small, purple, slightly elevated spots on the mucous membrane of the upper lip. When pressure is exerted upon them, they disappear but return when released to their original size. There is no difficulty in diagnosing the lesion as a case of hemangioma. These spots may be found in any part of the body. (See ¶231.)



Fig. 226

Photograph of a patient, 62 years old, presenting a soft, fluctuating, purplish tumor mass extending from the ridge of the maxilla into the cheek. This angioma was successfully treated by injecting boiling water, according to the Wyeth method. Figs. 227-228 show different stages during this treatment. (See ¶231.)



Fig. 227

Photograph of the same patient as in Fig. 226 taken after four injections of boiling water had been made into the tumor mass. The injections were given from two to four weeks apart and consisted of from 4 to 8 c.c. of boiling water. Note the marked decrease of the tumor. (See ¶231.)



Fig. 228

Photograph of the same patient as in Figs. 226-227 taken five months after the patient first presented. The tumor mass had completely disappeared under the Wyeth method of treatment. (See ¶231.)

¶232. Tumors appearing during pregnancy do not require any too radical an operation. Mere incision of such growths usually suffices and only cases in which recurrence takes place demand more radical surgery.

¶233. When lobulated, fibromatous proliferations of the mucous membrane of the mouth, caused by ill-fitting dentures, form slabs of such proportions that the wearing of a prosthetic restoration becomes difficult, if not impossible, they should be excised. (See Figs. 229-231.)



Fig. 229

Photograph showing the formation of folds upon the mucous membrane of the mouth, which were caused by irritation from ill-fitting den-

tures. Conditions of this character should be treated by surgical interference. The fibrous mass is dissected out, as much of the epithelial covering being conserved as possible. This epithelial flap may then be used to cover the raw edges, reducing the amount of scar tissue. (See ¶233.)



Fig. 230

Photograph showing extensive proliferation of the mucous membrane of the cheek. This condition demands surgical interference. (See ¶233.)



Fig. 231

Photograph of the patient in Fig. 230 taken two months after the operation for the removal of the proliferative mucous membrane of the cheek had been performed. The linear scar indicates the area from which the growth was removed. (See ¶233.)

¶234. Carcinoma of the jaws may not present a very characteristic picture of malignancy at the beginning, and such cases may be mistaken by the dentist for pyorrhea and treated for such a condition. All destructive mouth lesions should be treated with suspicion and much concern. (See Figs. 232-233.)



Fig. 232



Fig. 233

Figs. 232-233

Photographs of a patient, 51 years old, presenting a swelling of the left side of the face and a cauliflower growth involving the floor of the mouth and the gums from the region of the centrals over to the molar region on the left side. The patient had been treated by his dentist for more than four months. The condition for which treatment had been given was diagnosed as pyorrhea because of the ulcerated condition of the gums and the looseness of the teeth. Only when it had become evident that the condition was rapidly becoming worse did the dentist become suspicious. Then he sent the patient for a thorough examination. The diagnosis made was that of a carcinoma. (See ¶234.)

¶235. Hard, well-defined, symmetrical, pedunculated growths on the gingivae (fibromas), when removed by cutting through the pedicle, usually recur. The removal of such a mass, together with the underlying soft tissues and the adjoining teeth, is a more satisfactory procedure. (See Fig. 234.)

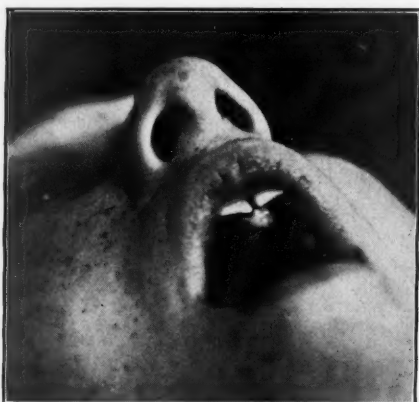


Fig. 234

Photograph of a patient, 32 years old, presenting a well-defined tumor upon the palate in the region of the maxillary incisors. It was of a hard consistency and attached to the palate with a narrow pedicle. The growth had been diagnosed as a hard, pedunculated fibroma, and the diagnosis was confirmed by a microscopic examination of the specimen removed. To operate successfully upon this type of growth, it is necessary to remove the tissues from which it springs. (See ¶235.)

¶236. Most terrible and deadly tumors (sarcomas) are usually not painful in the early stages, therefore every mouth should be carefully examined for the presence of such growths. These are not infrequently situated in positions not easily accessible to sight and touch and, due to absence of pain, may entirely escape the notice of the patient until they have existed for some time and have attained considerable size.

¶237. Syphilis and tuberculosis should be kept in mind when a case presenting a neoplasm is handled. Both conditions must be ruled out before a diagnosis of malignancy may be arrived at.

¶238. Very few malignant tumors of the jaw are cured by operation, for it is the exception rather than the rule to find cured cases with well authenticated pathological reports (Scudder).

355 East 149th Street.

(To be continued)



## Reminiscences—Mostly Anesthetic

By William Harper DeFord, D.D.S., M.D., Des Moines, Iowa

### FOURTH ARTICLE

Having obtained my dental and medical diplomas, I opened an office for the practice of dentistry in Washington, D. C. The story of Lincoln, narrated in THE DENTAL DIGEST for January, was still fresh in my memory. I had never had an opportunity to try chloroform in my work and had not even mentioned it to any of my teachers or demonstrators, feeling sure that they would not tolerate it.

Knowing how much safer nitrous oxid was than chloroform, it occurred to me that if such a condition could be obtained by the inhalation of chloroform vapor, perhaps the same result could be secured by inhaling nitrous oxid gas. (There was no such word as *analgesia* at that time.) So the very first patient who presented, with teeth so sensitive that proper cavity preparation could not be made, I had inhale nitrous oxid gas to that stage or degree that we now call *analgesia*. Much to my delight, the cavity preparation was made with little or no pain. After securing such satisfactory results in numerous cases with nitrous oxid, I nerved myself to try chloroform. This was so entirely satisfactory and the method was so easy as compared to the clumsy nitrous oxid appliance that I found myself using chloroform rather than nitrous oxid whenever it seemed applicable.

I said nothing about what I was doing or accomplishing to my patients. They, of course, did not know that I was doing anything different from other dentists. If I had said, "I am going to have you inhale chloroform; I do not know that this has ever been done by any other dentist than myself," the chances are they would have refused. That would have registered defeat. I knew that I was making more satisfactory cavity preparations than could have been made in hypersensitive dentin, that I could accomplish as much in a few seconds as I could in as many minutes by the usual method, that patients held still, and that very little or no pain was felt. I was so inexperienced at that time about dental procedures that I failed to realize or recognize what a wonderful advance this really was over the usual method of operating.

For two years I practiced in Washington, D. C., but I found the climate so trying that it became necessary for me to seek a more favorable location. I had made the acquaintance professionally of some very fine people from Iowa, and the climate of Iowa, as described to me on numerous occasions, seemed just about what I needed. I felt that my tenure of life would be brief unless I made a change. I had contracted malaria and was physically miserable all the time. Professionally I

very much desired to remain in Washington, because my professional friends kept me well supplied with patients, and my future seemed assured. But one day, looking over the *Items of Interest*, which at that time was published in the form of a newspaper containing but four pages, edited by Dr. T. B. Welch of Vineland, N. J., I saw under *Practice for Sale* that a dentist located in Eastern Iowa wished to dispose of his practice, and after corresponding with him I decided to run out to Iowa to see what he had to offer. I was so favorably impressed with what I saw that I made a down payment and agreed to take possession about three months later.

It was certainly some transition—moving from my native environment, the District of Columbia, where only a few times in my life had I ever seen the thermometer as low as fifteen degrees above zero and was almost unacquainted with snow, to Iowa at thirty-five degrees below zero, with snow covering the fence tops and that winter with more than a hundred consecutive days of sleighing. I had never had a sleigh-ride in my life! Then, jumping from a quiet little practice of three or four patients a day to thirty or more a day and working from seven-thirty in the morning until six and often later in the evening, and doing all the laboratory work at night because there were no dental laboratories in those days to which prosthetic work could be sent! It was no unusual thing, when I went to my office in the morning, to find five or six patients sitting on the steps waiting to have teeth extracted. The territory from which I drew my patients now has twelve offices. I had a well-equipped office with two operating rooms, a waiting or reception room, a laboratory, extracting and rest rooms, for which I paid one hundred dollars a year rent. I was very busy, and this offered a most excellent field for my anesthetic work—nitrous oxid for extracting and chloroform vapor for cavity preparation, when such was indicated.

Another and an unusual opportunity presented itself for experimental anesthetic investigation. One of the state penitentiaries was located in this town, and one of my duties was to take care of the teeth of the prisoners. They had a room for that purpose equipped at the prison. The days when it was snowing so hard that traffic was impossible I would go to the "pen." Those prison patients were always there and no previous appointment was necessary. The authorities always guaranteed the fee, it was a strictly cash business, and I received my money before leaving the prison each day. When I arrived at the "pen," I would be given a slip of paper with the names of the patients for that day and with the amount of money each one had on deposit. The only way of losing anything was to do more work than these patients had money on deposit. Extractions were done at my office, for there were no local anesthetics in those days and it was inconvenient to

transport my gasometer and cylinders to the prison. I really enjoyed operating at the prison more than at the office. Whenever anything was done at the office, a guard, and sometimes two, accompanied the prisoner and these took up a position a few feet away from my chair with a rifle or rifles in their hands, ready to fire should the prisoner make an attempt to escape. To miss the patient was to hit me, and it was not a comfortable feeling to look down a rifle barrel every time I glanced up from looking in a patient's mouth.

I would take my chloroform bottle to the prison along with my instruments, and when I desired to use it, I just reached over for it as I would for an excavator, chisel, pyorrhea instrument or any other instrument. Of course, these prisoners never knew that I was doing anything unusual.

The State Dental Society met the first week in May at Iowa City, and, as I wished to become a member, I attended. How strange and lonesome it seemed to face two hundred dentists, none of whom I had ever seen before! It was no easy matter in those days to become a member of the Iowa State Dental Society. In the first place, you had to be recommended by three members and, in addition to that, you had to pass a satisfactory examination before a committee. No member knew or had ever seen me before and it looked dubious as to whether or not I could qualify. One of the members of the examining committee said, "Well, let's examine him anyway and see what kind of an examination he puts up." So I was examined, orally, for three hours, and the chairman said, "You report at the annual meeting next year and we will tell you whether you will be recommended or not for membership." Ten years later I was elected president of the Iowa State Dental Society.

After conducting a practice of this kind for three years, I felt that I was slipping. The close confinement, long hours and nerve strain were too much for me. I had made the acquaintance of a very fine physician, and he insisted that I would go to pieces physically if I did not discontinue the practice of dentistry. He was preparing himself for eye, ear, nose and throat work. He had taken great interest in me, and one day he said, "I will tell you what let's do. I will discontinue the general practice of medicine and surgery, you dispose of your dental practice, go to some good postgraduate medical school, brush up on eye, ear, nose and throat, and we will hunt a location and practice that specialty. No more long country rides for me, no more night work for you!" I was so completely tired out that this sounded good to me, so in a few months I disposed of my practice and matriculated at the New York Polyclinic, a postgraduate school for practitioners of medicine. In the waiting room for students was a blackboard on the wall extending around the entire room, on which were painted the names of

some seventy-five hospitals. Our clinics were from eight in the morning until one o'clock. When the students returned to the waiting room at one o'clock, under the name of each hospital was a list of operations that would be performed that afternoon, the time and the name of the surgeon, and each student had a ticket admitting him to any one of these hospitals. Thus I had the opportunity of attending the clinics of all the most renowned surgeons in New York and observing the anesthetic work also.

15 Rawson Block.

(To be continued)



[ONE SOURCE OF VITAMINS]

*According to Prof. Kestner, physiologist of Hamburg, Germany, under all meteorological conditions in the Far North the ultra-violet radiation is stronger than in Central Europe. That explains in the main the unusually rapid development of plants in the short summer of Far North regions, and also the storage of vitamins. The sea plants store up the vitamins in relatively large quantities, owing to the highly potent radiation. These are eaten by small animals and these in turn by other animals, and the cod preys on them all. Thus the liver of the cod becomes the reservoir in which all the fat-soluble vitamins of the masses of devoured sea plants are deposited.*

—JOURNAL OF THE AMERICAN MEDICAL  
ASSOCIATION.

## Porcelain Manipulation

A PRACTICAL TECHNIC FOR THE GENERAL PRACTITIONER

By F. R. Felcher, D.D.S., Chicago, Ill.

### XIII

#### PORCELAIN JACKET CROWN CONSTRUCTION

In concerning ourselves with the actual building of a porcelain jacket crown the first requirement is a good model to work on. With this kind of model the construction is simplified to a great degree because of the fact that the model reproduces the correct contour from which to copy, alignment is made an easy matter to obtain, and the contact points and occlusion are taken care of without difficulty.

It will be found that in building porcelain jacket crowns it is far more simple to make crowns on models than it is to build jacket crowns on dies merely for clinical purposes. The model is the guide. It carries the story of the teeth, and one needs only to build type, alignment, contact and occlusion.

In the article on porcelains very little was said on the subject. It is the opinion of the author that if a man desires to understand porcelains from the technical side of the subject, knowledge can be gained from the proper textbooks or encyclopedias. Reputable manufacturers are producing porcelains correctly as to fusing points and shades, making it necessary for the porcelain operator to manipulate them only.

We start with the shade that it is desired to reproduce. Our first consideration here is the dentinal color, and how far we are to carry it in order to produce the necessary shade. Too much or too little of the dentinal color may interfere with the shade to be produced. While it is a fact that correct contour is as much a factor as color, yet it is desirable to produce color wherever possible, and this is not a difficult thing to do. A good method in determining the extent necessary for the dentinal color is to take the manufacturer's shade guide of the tooth from which the shade was taken and hold it sidewise. It will be noticed that the yellow or dentinal color extends just so far on the tooth. That is a sufficient guide to use unless we wish to produce a deeper dentinal color such as is found in cuspids, which are always more yellow, or a lighter yellow for upper laterals. In the latter case the dentinal color is not applied so heavily.

It is a good practice to develop the habit of keeping the dentinal color on the left side of the slab and the incisal color on the right. In order to be sure which is the top of the slab, a few knicks with a file or a stone will serve. Then use the slab with the knicked portion as the top thereafter. Place a quantity of the porcelain powders in their re-

spective positions on the slab, and mix each with some clean water, keeping the two colors apart. A large-sized, clear-glass slab is the best to use. Mix the porcelain by spatulating rather than by mixing. This is to preclude the possibility of wearing off some of the steel from the palette knife by the abrasive quality of the porcelain. Continuous patting has a tendency also to incorporate the water and the porcelain, thus eliminating the air from the mix. Prove this by simply adding water and porcelain without patting, and apply the mix at once. You will notice bubbles of air coming to the surface, which will give the porcelain mix on the slab a pitted appearance.

Mix the porcelain, applying the plaster pencil to draw off the excess

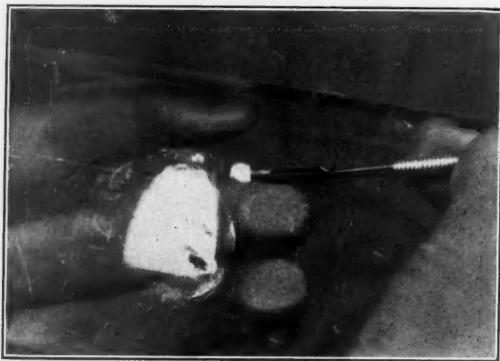


Fig. 48

The proper mix of porcelain—ready for application to the matrix.

water. This may have to be done a few times until the proper consistency is reached, when the mix appears to resemble sand with the water drawn off and yet, when it is patted, a bit of moisture will come to the surface (Fig. 48).

When both of the colors have been taken care of, place a cover over the enamel body. This is done to retard evaporation of the water in the mix, as at the beginning we are to build up the dentinal color only. Dust also will be kept out by this precaution.

Have at hand a small dish such as a dappen dish filled with clean water. A small amount of the dentinal color is picked up with the point of the carver and applied to the matrix at some part of the shoulder and continued completely around it. Now with the rough portion of the carver rasp the die, which will bring the water to the surface. Apply the plaster pencil to the porcelain at once, drawing the excess water off and removing the pencil as soon as the porcelain appears dull. Do not leave the plaster pencil on too long.



A word about the plaster pencil may not be amiss. The author prefers to use this rather than blotting paper or a towel. It will be found more convenient and less likely to give off particles of lint, which may burn as a speck in the porcelain. It is only necessary to wipe the plaster free from the slight amount of porcelain which will adhere to it at the place where it is applied to the porcelain mix. It is always handy and takes up very little room. These pencils may be made by mixing some plaster in the usual way and pouring the plaster on a smooth piece of paper. When the plaster begins to set, cut into small strips. When completely set, shape to the size of a pencil except that the sides are made square instead of round and finished off at the ends like an ordinary eraser.

The more the porcelain is condensed, the less will be the subsequent shrinkage. Considering the fact that there is no change whatsoever where porcelain and water are mixed, the closer the particles of porcelain are placed, the less will be the shrinkage, and it is suggested that we develop a method of condensation that will give us the closest mass of porcelain as a result.

Whenever porcelain is agitated or rasped with the rasping portion on the handle of the carver, the water in the mix comes to the surface. It is reasonable to assume that the crystalline particles of the porcelain are falling in closer contact as this is being done. By immediately applying the plaster pencil the mix is kept in this condition. However, if the plaster pencil is used too long and too much of the water is drawn off at one time, the mix will be more or less loose and the final shrinkage will be greater. It will be found far better to apply the pencil a few times rather than once until the water is drawn off and to rasp again and again to bring the water to the surface until the excess is removed. The porcelain should be moist enough to receive another application from the slab, both the new application and that on the matrix adhering to each other when applied. If the porcelain on the slab has dried out somewhat, dip the palette knife into the water in the dappen dish and bring the mix to the proper consistency.

If, on the other hand, the porcelain on the matrix has become too dry so that the adherence of fresh porcelain is interfered with, a drop of water of any size may be added by the carver to bring the porcelain to the right degree of moisture. If only the point of the carver is placed in the water in the dappen dish, a very small amount of water will be picked up. A large drop can be obtained by dipping the entire blade of the carver in the water.

Returning to the actual application of the porcelain to the platinum matrix—at first the porcelain is placed at and around the shoulder until the shoulder is covered (Fig. 49), condensed from time to time by agitating, using the plaster pencil to draw away excess water. Continue



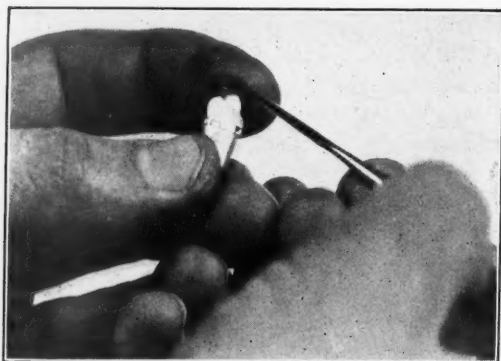


Fig. 49

The shoulder is first covered with the dentinal color.

to place the porcelain until the entire matrix is covered with the foundation color, using the blade of the carver to burnish the porcelain as it is applied. Excess porcelain is now removed from beyond the shoulder with the finger. Properly condensed high-fusing porcelain will shrink about one-sixth in baking, therefore the dentinal color should be built about one-sixth larger (Fig. 50). Now set the die and the build-up in the model and note if the dentinal color is sufficiently built up, checking the alignment, etc., and then the incisal color can be used. This is applied from the gingival third incisally. If rasping is desired, care should be exercised not to run the colors. The carver designed by the author has a fine as well as a coarse rasp on the handle, which enables more delicate agitation of the porcelain. When the proper type of tooth has been built on the model, allow for shrinkage by building the incisal or occlusal surface somewhat longer incisally or occlusally,



Fig. 50

Complete application of the dentinal color.

as the case may require, and then remove the case from the model. Now apply some additional porcelain at the contact point (Fig. 51).

For the novice who is not quite sure of the condensation of porcelain it is advisable to relieve the shoulder. This is done by cutting into the porcelain at the shoulder with the point of the carver. With a stiff brush, clean the excess from the shoulder and from the apron. When the mix is loose, this will prevent the porcelain from drawing the platinum from the shoulder and subsequently leaving an ill-fitting shoulder when the platinum is removed. However, if the precautions such as a long apron and good condensation are exercised, there will be no need for shoulder relief.

The crown is now baked to what is called the *high-biscuit bake*, which is usually at a temperature of from 150° to 200° below the

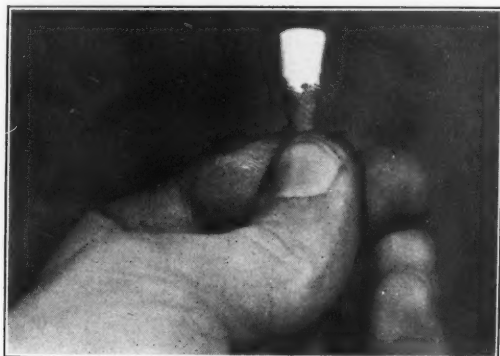


Fig. 51

The crown ready for the biscuit bake.

fusing point of the porcelain. The purpose of the biscuit bake is to allow for the complete shrinkage of the porcelain and still not have a complete fusing, allowing for the final fusing or the finished glaze at the final bake. The biscuit bake also allows the operator to grind the porcelain, should this be necessary. If the contact points are too wide and interfere with proper placement in the mouth, they may be ground with a smooth, true-running stone. Grinding under water will be found a decided advantage.

In cases where the operator has felt obliged to relieve the shoulder after the first build-up, the shoulder portion should be burnished after it has been biscuit-baked and subsequently filled in with the dentinal color and the rest of the crown built. In this case it is advisable to have the first biscuit bake lower than the one just mentioned, that is,

from  $250^{\circ}$  to  $300^{\circ}$  below the regular fusing point of the porcelain. By so doing, prevention of possible over-fusing of the porcelain is accomplished. If we but keep in mind the fact that porcelain fuses at a lower temperature over a longer period of time, we can readily appreciate that the more we bake, the lower temperature must be maintained while baking until the final fuse is to be used.

In this case the second biscuit may then be safely brought to about  $200^{\circ}$  below the fusing point. The crown can then be tried in the mouth for correction by first cutting the platinum apron up to the shoulder. When the trimming is complete, or when the crown is ready for the final fuse, disk thoroughly, wash away any particles of stone or material



Fig. 52

Model showing two centrals requiring jacket crowns.



Fig. 53

Model showing two central jacket crowns.

from the disk, and then dry. A little dry porcelain powder may now be brushed over the crown, although this is not really necessary, and the crown high-fused.

When high-fusing a crown from which the apron has been removed, it is advisable to mount the crown on some object such as a platinum pin which will keep the gingival of the crown away from either the silex or the tray. (Figs. 52-53.)

Baking or firing of porcelain will be discussed as a separate item. As this is an important part of the knowledge of the ceramist, the subject should be one of which complete understanding is acquired before any attempt is made to bake porcelain bodies.

Jacket crowns, wherever possible, should be built in two bakes, but in not more than three, which are usually the requirements of large posteriors.

The platinum is removed from the finished crown by first filling the interior of the crown with water and then grasping the matrix at the shoulder with the matrix plier or the "K" tweezers and pulling the matrix toward the center. Then, by taking hold of the matrix at some

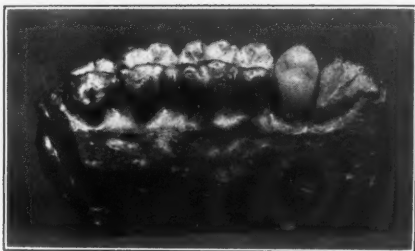


Fig. 54

A bicuspid jacket crown on a metal model.

other part at the shoulder, the operation is repeated. Finally, by grasping the matrix deeper down in the crown with a slight rocking motion the matrix will come out, usually in one piece. (Fig. 54.)

For cementation, use a good cement, one that has a color similar to the gingival color of the crown. The use of cement of the wrong color may interfere with the shade of the crown when set. One of the large manufacturers has placed on the market a translucent cement which the author finds an ideal medium for jacket crown cementation.

7616 Phillips Avenue.

(To be continued)



## Togo's "Discursions"

*Mr. Editor of Dental Magazine Showing Slight Upward Tendencies*

*Hon. Sir:*

Recent developments of high pressure publicity campaigns in Suburban field of Dentistry cause thought vibrations which suddenly result in following somewhat intelligent question: "Is degree of D.D.S. presently to denote adult individual who is engaged chiefly in acting as front office man and supersalesman for Dental Laboratories, gold Mfg.'s, mouth wash mfrs., associated Bakelite researchers, and other assorted Commercial Etc., most of whom seem now engaged in telling him how to do wide variety of beautifully illustrated results to regular patients at fees resembling sky rockets because interesting only in proportion to size, swiftness and brilliancy during going up period?"

Dentistry Mr. Editor is still suffering from fact of Extreme Youth, but Dental Laboratories are considerably younger. Practice of Dentistry calls for distinct by-products of service and unselfishness belonging exclusively to professional life and activity—while conduct of Dental Laboratory is entirely Commercial Enterprise related to Professionalism merely because of fact that it cannot exist without Licensed Practitioner by whom its entire product must finally be installed in helpless face of ultimate consumer.

Dental Profession has expended large sums of cash money and several brains of considerable horse power in Scientific Research work attempting to sort out all mysteries connected with disasters of tooth decay, pyorrhea and other mouth etc. with single idea of conferring greatest benefits to suffering Vox Populi either in or out of Dental Offices. What is deliberate and exclusive goal of all advertising, clinics, demonstrations, Publicity Campaigns conducted by all Dental Laboratories? More cases sent in by Hon. D.D.S. at higher fees if possible.

Perhaps average intelligence discoverable in brain cells of D.D.S. practitioner is entirely insufficient for proper solution of serious daily problems presented by assorted patients suffering from permanent absence of one or several teeth as called for by original specifications covering complete jaw equipment, but is evidence anywhere present in overwhelming quantities that cortical tissue constituting thought convolutions of Laboratory Proprietor and assistants is in all cases of superior karat and fineness to that possessed by Dentist enjoying benefits of direct contact with patient who is in this case also cast in ambidextrous rôle of ultimate consumer? What first hand experience if any is enjoyed by most 100% Certified Technicians regarding conditions of teeth more or less completely surrounded by clasps after two to ten years of such metallic embrace?

Perhaps slightly profitable mental inquiry and investigation might be made regarding differences in attitude and responsibility of Dentist and Dental Laboratory toward patient and ultimate consumer just alluded to. Hon. Patient invariably knows who is serving him in capacity of Dentist, but practically never knows location or personnel of Laboratory which is called in to perform certain parts and quite possibly create final result. If said final result is wholly unsatisfactory disappointed victim will seek services of some other D.D.S. for construction of new appliance as hopefully recommended—but action as noted carries no loss whatever to Laboratory which made originally unsatisfactory specimen; quite possibly it directly benefits by series of changes described, for having already been paid sufficient fee for unsatisfactory appliance installed by D.D.S. No. 1, it now stands excellent chance of also being asked to make second appliance by D.D.S. No. 2 who is perhaps patron of same Advertising Experts chiefly because D.D.S. No. 2 is conducting practice in same neighborhood. Thus discernible fact is easily recognized that unsatisfactory result delivered to patient is far more serious occurrence to Dental practitioner than to Dental Laboratory, though both are possibly equally at fault in unfortunate collaboration.

Peculiar combination of attending circumstances not necessary to enumerate render removable appliances of assorted descriptions more amenable to laboratory construction than so-called fixed bridges! Therefore preponderance of Laboratory recommendation, illustration and exploration, concern sale and installation of articles of mouth furniture which can in most cases be removed with one or both hands and certain assisting jaw dislocations. . . . In considering relative value and satisfaction of removable or fixed tooth installations, following fact has apparently been overlooked by all Scientific Investigators. Only removable substances ever designed by Nature to be placed in Human Mouth during Adult Period of life are food and hairpins. All other removable objects should be introduced only as last resort or in case of extreme necessity.

Undoubted fact that all fixed bridgework of several years prior date was usually dirty and disfiguring does not constitute sufficient argument against modern installation of beautifully designed fixed restorations having degree of cleanliness and comfort superior to 50% of natural teeth usually present in Human Mouth at similar age.

Dental Laboratories are indispensable production sources turning out large amounts of creditable and useful tooth helps for Dental Profession; modern practice is impossible without such assistance. However, extremely important fact should not be overlooked that they are primarily commercial enterprises conducted by men who are not infrequently entirely untrained in all finer points of complete mouth and tooth health.

Records enjoyed by Dental Colleges and Research Institutes are excellent and such sources can be hopefully tapped in present and future dates for guidance and information as to what is best to do and how. Generally speaking all personal observation points to unmistakable fact that individuals possessing teeth which are fixed are in more satisfactory state of repair than those possessing teeth which move and can be removed.

Hoping you are the same,

Togo.

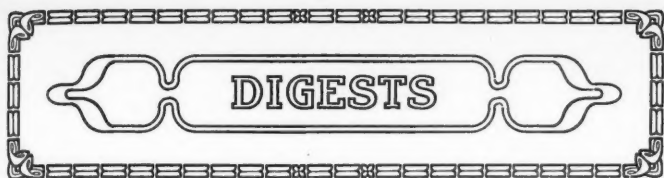


[SCIENTIFIC KNOWLEDGE NOT ALL]

*Neither Christmas-tree operating units nor duplex operating rooms with time clocks have increased the efficiency of dentists. Neither will the critical survey of dental schools and a revamping of the curriculums with medical subjects improve the operative skill of the graduates. If a survey was made of the predental classes, there might be more opportunity to effect a reform. Then the candidates lacking in dexterity and mechanical ingenuity might be shunted into medicine, where they could gravely pose and do less harm than in dentistry. Scientific knowledge is an important asset in dentistry, but as long as restorations and replacements are required, dentists must have natural and properly trained constructive ability.*

—SIMPSON.





## OBSERVATIONS ON THE DANGERS INCIDENT TO THE REMOVAL OF INFECTED TEETH

BY RICHARD DEXTER, M.D.

### *Case Reports*

*Case I.*—P. J., aged 33, male. Six days before admission to the hospital the patient had a right and left molar tooth extracted from the lower jaw. On the day following the extraction the right side of the face became swollen and very painful. This continued until the patient could scarcely talk and could not swallow. The pain in the face was extreme. The past history was negative. The physical examination showed both sides of the face greatly swollen, the swelling being more marked on the right. The swelling extended down over the neck on the right. There was great induration, tension and extreme tenderness. The breath was foul, the swelling so great that the patient was unable to open the mouth. The sites whence the teeth had been removed were greatly inflamed and were surrounded by a whitish, dirty-looking membrane. The temperature was 103.6° F., pulse 120, respiration 20. Otherwise the physical examination was not important. Smears from the infected area showed large numbers of spirochetes and fusiform bacilli, and many staphylococci. The cultures showed staphylococcus albus. The urine showed a heavy tract of albumin and many hyaline and granular casts. The patient was severely ill, showing all the earmarks of an overwhelming infection. On the day following, the cellulitis was opened and drained, at which time it was found that the floor of the mouth was already gangrenous. Death occurred on the day after the operation.

“Comment: In this case, an individual, previously in the best of health, died with an overwhelming gangrenous infection of the mouth and face, following directly on the removal of two abscessed teeth.

*Case II.*—A. H., aged 21, female. The patient was admitted to the hospital because of pain and swelling over the right jaw, accompanied by chills and fever of two weeks' duration. The present illness began three weeks prior to admission when a right lower molar was extracted for the relief of toothache. The tooth was broken and part of it was not removed. As the pain in the tooth continued, the remain-

ing portion of the tooth was extracted a few days later with considerable trauma. Following this second operation the face swelled and the patient had severe pain. Chills and sweats began almost at once, continuing daily. The past history was negative, except that the patient had always been exceptionally healthy. The physical examination showed great swelling, most marked over the angle of the right jaw. The swelling extended behind the right ear, was indurated and exquisitely tender. The breath was foul, and the mouth could be opened only a little. Otherwise the physical examination was negative, except for a few fine rales at the base of each lung. The patient was acutely ill. The temperature was 106° F., pulse 160, respiration 50. The white count was 23,600. The urine showed a heavy trace of albumin and many granular casts. The infection was opened and drained. A culture from the infected area showed only staphylococci. Blood culture was negative. Two days after the operation the patient became jaundiced. Five days after admission to the hospital the patient died, presenting a picture of general infection with some hemolytic invader, probably the hemolytic streptococcus.

"Comment: This case developed a fatal local and general infection following the removal of one presumably abscessed tooth. It is to be noted that the extraction, which needed two operations, was accompanied by definite trauma."—*Bulletin of the Ohio State Dental Society*, February, 1928.

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## LEGISLATION TO REGULATE ALL ADVERTISING DENTISTS

BY T. A. BROADBENT, B.S., M.S., D.D.S.

The author sent out a questionnaire to the secretary of every state board of dental examiners in the United States in regard to the advertising that was done in each state. A careful analysis and summary of the answers indicate that:

1. There are so few advertising dentists in the United States that they cannot be a very great menace to the profession nor inflict great damage on an unsuspecting public.

2. Advertising is confined largely to cities of 50,000 population and over, being most numerous and most harmful in cities of 500,000 or more.

3. In a decided majority of the states the dental advertiser is so well regulated and controlled by dental laws that he is driven out entirely or, if he remains, he is harmless.

4. In some states he is rendering a real service to the public, because

he reaches a class that would not patronize the ethical dentist, and is rendering service that is equal in quality to that given by the average ethical dentist.

The rigid enforcement of existing laws is needed more than additional legislation.—*The Journal of the American Dental Association*, February, 1928.

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## A CASUAL SURVEY OF DENTISTRY

By T. O. HEATWOLE, M.D., D.D.S.

It is probable that, starting at 1840 with the establishment of the Baltimore College of Dental Surgery, during the first fifty years dentistry advanced more rapidly than would have been the case had it been a branch of medicine. Within the last three decades great progress has taken place and dentistry has won a prominence in the professional world and in the eyes of the public.

Some of the leaders are aiming to combine dentistry with medicine, while others wish merely to raise the standards of admission until they equal those set by the American Medical Association for medical students.

Medicine at present is conducted in a highly specialized manner, and to the majority of the laymen this means that the physician is unable to grasp and master the subject as a whole. Furthermore, they are likely to conclude that a departmentalized profession is also a commercialized profession. Dentistry is following medicine in this respect, and to join it to medicine would only hasten this result.

The majority of dental students go through school on funds that must be repaid in whole or in part. Dentistry is not a profession that is attractive to the children of well-to-do families, consequently the standard of education cannot wholly disregard the economic status of the student. There seems to be a possibility that, in the future, medicine will reduce its professional instruction to three years. Dentistry will be obliged to follow suit.

Dentistry should continue as a separate profession and should guard against overspecialization.—*The Dental Cosmos*, February, 1928.

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## TISSUE CHANGES UNDER DENTURES

By C. J. STANSBERRY, D.D.S.

With the exception of the brain all the cells in the body are continually changing and any change in the tissues is a manifestation of cell metabolism. When healthy tissue used in a normal way begins to

atrophy, we may expect to find the reason in some nutritional fault. When a healthy tissue is abnormally used, we shall find in all probability an impaired blood-supply due to this abuse.

The edentulous mouth is an abnormal condition which will bring about a tissue change, and this change should be regarded as normal for the edentulous mouth. In the normal mouth every act of mastication is beneficial to the tissues. The excursion of the food massages the gums, and the rough tongue is continually scouring and stimulating and cleaning. The act of swallowing causes suction, increasing the flow of blood.

When a denture is inserted, all is different. An improper impression may result in irritation, interference with circulation and atrophy from pressure. Improper vulcanization, resulting in roughness and porosity, is irritating, permits the accumulation of debris, and provides an ideal place for the growth of bacteria; consequently we find the underlying tissue red and inflamed. The mechanical defects of the dentures transmit varying strains to the supporting tissues, strains that are not received under normal conditions. And finally the greatly reduced thermal conductivity diminishes the temperature changes, which are beneficial stimulations.

Vulcanite is the worst material for denture construction. All its advantages are in favor of the dentist, and the disadvantages against the patient. A metal base eliminates porosity and the rough surface and will permit thermal changes more than any other material. The correct arrangement of the teeth will minimize the improper distribution of force.—*The Journal of the American Dental Association*, February, 1928.

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## EXTRACTION OF TEETH

BY T. H. GLENN, M.D.

The human body is so carefully adjusted that, in order to function properly, all its organs must be in good working condition. Although the removal of one organ may relieve certain symptoms, yet the loss of the organ may result in the development of a deep-seated pathological process.

At one time there was a wholesale removal of tonsils, and when the results were not found to be so good as had been expected, then the number of tonsillectomies lessened. Recently teeth have received a great deal of attention, and if 60% of the cases showed beneficial results from extraction, this destruction might be justified, but such is not the case.

If the removal of a tooth does not eradicate the symptoms, then an irreparable injury has been done the patient. The power of mastication has been impaired, food is not properly prepared for digestion, and an increased amount of work is thrown on the already deficient intestinal tract. Rheumatic pains are often increased and artificial teeth can never function so well as normal teeth.

Too much stress should not be placed on the x-ray, and other methods of testing should be used in conjunction with it. The physical condition of the patient should be considered, and if there is any doubt, there should be a consultation with a reliable physician.

Severe toxemia may result from tooth extraction, and in certain cases the teeth should be treated until the patient's general condition has improved. It is never safe to remove more than two infected teeth at one time, and sometimes only one should be extracted and the reaction noted.

As specialists, dentists should have the courage of their convictions and protect their patients from meddlesome surgery.—*The Pacific Dental Gazette*, January, 1928.

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### PULPLESS TEETH

BY EDOUARD M. HALL, D.D.S.

"(1). The most important factor is, first of all, to make a complete and correct diagnosis of each individual case.

"(2). The primary issue or major problem is the determination, not of methods of treating infected root-ends, but the development of a technic for the removal of vital pulps in such a manner that a healthy root-end will be maintained in a satisfactory percentage of cases.

"(3). Infection is undoubtedly the greatest factor causing failure in root-canal work, therefore surgical asepsis is of prime importance and the root-canal filling must seal the canal both as to length and diameter, thus obliterating completely the spaces in which fluids may collect and there serve as culture media.

"(4). Second only to asepsis is the measurement control of instrument trauma and therapeutic injury to the apical and periapical tissues. The importance and value of maintaining the vitality and health of the apical and periapical tissues cannot be too strongly emphasized.

"(5). Therefore no tissue-destroying drugs are safe to use in root-canal work; pulp extirpation should be done surgically under general anesthesia, nerve block, infiltration or pressure anesthesia.

"(6). Do not attempt to do root-canal work without the aid of the

x-ray, or without a proper and adequate supply of instruments and equipment.

"(7). Never destroy or remove a vital pulp except for cause, and that cause is disease or a condition almost certain to result in death of the pulp.

"(8). Do not treat and try to save diseased teeth for sick people.

"(9). Do not treat one tooth for a patient and leave other teeth which show evidence of infection untreated.

"(10). Do not enlarge the apical foramen or go beyond the cemento-dentinal junction with either instruments or root-filling material.

"(11). Never leave a tooth unsealed. Saliva should never enter the canal after treatment is once started.

"(12). Evacuate, retract, remove canal contents; do not pump, push or expel septic matter through the foramen.

"(13). Conclusions should not be drawn from results obtained in just a few special cases under observation for only a short time, but must be made from tabulated records of many case histories running through a long period of time.

"(14). In root-canal work, success in a very great measure is proportionate to the mechanical excellence of the operation measured in terms of surgical asepsis, control of instrument trauma and chemical irritation and the complete obliteration of the pulp canal both as to length and diameter to, but not beyond, the cemento-dentinal junction.

"(15). If the dental profession cannot learn to operate on the six anterior superior single-rooted teeth presenting with vital pulps in such a manner that a healthy root-end will be maintained in a satisfactory percentage of cases, then we have no grounds upon which to justify root-canal work. Let us begin at this point and prove our grounds."—*The Dental Cosmos*, February, 1928.

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## EXTRACTION OF TEETH

Too many teeth are extracted without clinical or pathologic justification. Two opposing conditions are constantly present: (1) all infection in the mouth must be eradicated; (2) teeth should not be extracted if the infection can be otherwise eliminated. Discussion of the relationship of tooth infection to certain systemic diseases is, of course, no longer necessary. It is self-evident that all sepsis and pathogenic foci in the mouth should be removed. Success in this field demands more frequent consultations between the dentist and the family physician. The physician should not peremptorily order one or more teeth extracted, nor should a dentist extract the teeth of a person who is found by questioning to be under the care of a physician or in need of

medical care without consulting with the physician who has examined the patient.

Too many instances are now on record (and probably the reported cases represent only a small minority of serious conditions following the extraction of teeth) of dental and medical thoughtlessness in the extraction of teeth in more or less serious conditions. Three instances of death following soon after the extraction of teeth were recently reported by Buckley. The removal of teeth is a surgical procedure, though generally a minor one, that requires preoperative cleanliness, skilled technic and, if there is infection and suppuration, careful and untiring postoperative treatment.

A tooth should generally not be removed until a roentgenogram has been taken and commented upon by a skilled roentgenologist. The gums of a person with pyorrhea should rarely, if ever, be punctured for the injection of procain hydrochlorid or any other substance, as the punctures offer absorbing surfaces for the bacteria already in the mouth. The surgical treatment of a septic mouth after operation should be the same as that of any other part of the body that is septic. The necessary extraction of septic teeth will not cause death, but the neglect of medical and surgical care of the patient associated with any surgical operation may do so.—*Current Comment, The Journal of the American Medical Association, January 14, 1928.*

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## THE USES OF NITROUS OXID AND OXYGEN IN DENTISTRY

BY IVAN S. SPAIN, L.D.S., ENG.

Nitrous oxid alone can be used only in cases that can be completed under thirty seconds. If the anesthesia is not carried too deeply, the after-effects are reduced to a minimum.

Air should be used with nitrous oxid only when oxygen is not available. The percentage of nitrous oxid varies from 95% to 80%. Very seldom can it be brought lower, and above 95% a varying degree of cyanosis is present.

The best indications of anesthesia are the absence of corneal reflex, a soft respiratory stertor, and general relaxation. The patient should be saturated as completely as possible with nitrous oxid, but with sufficient oxygen to prevent cyanosis. Rebreathing should be employed to keep up the carbon-dioxid content of the blood.

Any resistance to anesthesia should be overcome by administering the mixture under a slight positive pressure rather than by reducing the quantity of oxygen. This gives a quiet, tranquil anesthesia.



A non-apprehensive mind must be produced for successful analgesia. Nitrous oxid and oxygen is used, and the whole mixture is diluted with air. At first the patient should get about 20% of the mixture and 80% air. After a few minutes the mixture is increased. Analgesia cannot be substituted for local anesthesia, but in many cases it is an excellent addition.

Except in certain cases such as alcoholics and resistant patients, there is no advantage in adding ethyl chlorid to the mixture.—*British Journal of Dental Science*, February, 1928.

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### TRIGEMINAL NEURALGIA AND ITS TREATMENT

By K. WINFIELD NEY, M.D.

Although tic douloureux has been recognized for over 120 years, its etiology is still unknown. It should be easy to differentiate it from migraine because the latter is periodic and has a gradual onset, while tic is paroxysmal, severe and of comparatively short duration. The spasm usually lasts for only a few seconds. The course of the disease is essentially chronic.

No true case of trigeminal neuralgia is ever relieved by any operation upon the teeth or sinuses, nor is medication of any value. The only relief is to be found in surgery. Alcohol may be injected into the terminal branches of the nerve or into the Gasserion ganglion. The peripheral branches of the nerve or the posterior root of the ganglion may be divided or removed. The injection of alcohol may give relief for one or two years, but the operation must be repeated and the results will be less satisfactory each succeeding time.

The division of the sensory portion of the posterior root of the Gasserion ganglion is the operation of choice. The mortality is less than .5 per cent, and the cure is permanent and complete. Cutaneous anesthesia on the affected side is the result of a successful operation, but the patients soon become accustomed to this and welcome the relief from pain. In most cases it is possible to preserve the motor root, thereby retaining the functions of the muscles.—*The Journal of Dental Research*, February, 1928.



# DENTAL LAWS

## MASSACHUSETTS

The bill requiring annual registration of all dentists in active practice in the Commonwealth of Massachusetts was passed during the last session of the Legislature and becomes law before April 1, 1928.

This law has been advocated by the Board of Dental Examiners and the Massachusetts Dental Society for a number of years, and its final passage will be of great value as a measure of protection from the unlawful practitioner both for the public and for the legal practitioner.

The measure calls for annual registration, with a fee of \$2.00, before April 1, 1928, of all dentists in active practice in the Commonwealth of Massachusetts, together with such information as may be necessary to carry out the provisions of the act.

W. HENRY GRANT, D. M. D., *Secretary*,  
Board of Dental Examiners,  
Room 146, State House, Boston, Mass.

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## NEW YORK STATE

### RAISES QUALIFICATIONS FOR SCHOOL DENTAL HYGIENISTS

By action of the New York State Education Department dental hygienists engaged in public school work are now considered as Dental Hygiene Teachers. They must be certified as such in order that local boards of education may receive the state quota toward their salaries. This provision is the same as is required for all other teachers.

Qualifications for certification as a Dental Hygiene Teacher are: "(1) registration as a dental hygienist in New York State; (2) credentials showing completion of at least twelve semester hours' work in approved professional courses in health education." Provision is made allowing those now employed in or entering school work in 1928 a reasonable time in which to secure the second qualification.

## PRACTICAL HINTS

This Department is now being conducted from the office of The Dental Digest. To avoid unnecessary delay, Hints, Questions and Answers should be addressed to Editor Practical Hints, The Dental Digest, 220 West 42d Street, New York, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

### *Editor, Practical Hints:*

A lady patient, about 50 years of age, has been wearing an upper rubber plate (lower natural teeth) for four years. During that time she has been troubled continuously with dry mouth. On removing the plate the flow of saliva is normal. She keeps gum in the mouth to stimulate the flow of saliva. I should appreciate your advice as to what might be done to relieve the condition.

J. A.

ANSWER.—Without doubt your patient is suffering from a reflex nervous condition due to pressure by the plate on the endings of the palatine nerves. I would first relieve the pressure over the anterior and posterior palatine foramina. If this does not eradicate the trouble, I would make a metal plate, preferably of gold.

### *Editor, Practical Hints:*

I am confronted with a case that is a little unusual, and I am in doubt as to how to proceed.

The patient, a boy of twelve, has a non-vital upper right lateral with a large cyst at the apex. The central and cuspid, adjacent, are vital. I have opened the lateral, and a thin serum that is odorless drains out in quite a large quantity.

I do not like to resort to extraction if there is any way to avoid it. I am enclosing a radiograph.

F. D. A.

ANSWER.—I should make every effort to save the tooth. I should

think that the cyst could be operated upon through the palate, taking off if necessary a part of the root. This procedure would probably postpone the necessity of extraction for a number of years, especially if the patient is in good health and has a high resistance. It might effect a permanent cure.

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*Editor, Practical Hints:*

I have a patient, male, aged between 55 and 60, whose incisors, cuspids and bicuspid, upper and lower, have grooves across the labial surface and look as if they had been cut with a knife-edged stone through to the dentin. I have been practising dentistry for the past twenty years, and this is the first case I have ever seen like it. He tells me that he has never found a dentist who could account for the condition.

J. B. N.

ANSWER.—Your patient is evidently suffering from erosion, of which there are two types, mechanical and chemical.

Inquire into the patient's toothbrush habit. If he is using the forward and backward strokes and an abrasive tooth-paste, these things should be corrected. Instruct the patient to brush the teeth with an up-and-down motion from the gums to the occlusal surfaces, and the use of abrasive paste should be discontinued.

If the erosion is purely chemical, it can be arrested to some extent by a regulation of the diet—food rich in vitamins, whole wheat bread, rice, potatoes, etc. Only a small amount of meat should be eaten.

The eroded places that are deep should be filled.

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*Editor, Practical Hints:*

What is the proper treatment for swelling after extraction? Also, for infected third molars when immediate extraction is not possible?

J. B.

ANSWER.—Cold packs are very beneficial in the treatment of swelling after extraction. They should not be applied too frequently or over too long an interval.

They are also good for the treatment of infected third molars. In this case it is also good practice to paint the area with iodine and clean out any matter that may have collected in the pocket or under the flap.

*Editor, Practical Hints:*

What would you recommend for a patient who gags in wearing an upper denture?

M. R. C.

ANSWER.—The first thing to do is to make sure that the posterior border of the plate maintains contact with the palate at all times. The common fault in cases of this kind is to trim the plate. This should never be done. As a rule the plate should be extended further back and postdammed.

When the patient starts to gag, he should close the teeth firmly and breathe deeply through the nose. This should be continued and in a very short time the gagging will be overcome. In persistent cases it may take some time to effect a cure, but it can be done if the patient will stick to it.

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*Editor, Practical Hints:*

Can you advise me how to hasten the growth of new interproximal tissue, destroyed by Vincent's infection?

I have been treating a case for three months, using 10% salvarsan in glycerine applications superficially, and the patient's physician has given three injections of neosalvarsan in that period.

The teeth are firm and the gums are a normal color, but great crevices exist between the teeth, although some new issue has formed, which the patient finds impossible to keep clean without injuring the gums.

Any suggestions will be greatly appreciated.

L. C.

ANSWER.—I regret to say that gingival tissue that has been destroyed by Vincent's angina will never return to normal. The best that you can hope for is that the pockets will heal and the gums become hard. The pockets can be kept clean by the careful use of absorbent cotton on a toothpick and the vigorous use of an astringent mouth wash. Diluted  $H_2O_2$  also will be found valuable.

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*Editor, Practical Hints:*

I read with much interest the *Eleventh Letter* of the Howe series. Could I find out the method used by the writer in determining the width of the arches and then bringing them to normal occlusion? I am doing considerable children's work, including some orthodontia, and hope to do more.

H. F. C.

ANSWER.—The method used to determine roughly whether or not the arch is of proper width is as follows:

The distance between the mesial contact points of the two cuspids should equal the distance from the mesial contact point of the cuspid to the distal contact point of the second deciduous molar. If the second measurement does not equal the first, then the arches must be expanded or there will not be room for the permanent incisors.

This method is not, of course, absolutely accurate, but works out correctly in most cases.

*Editor, Practical Hints:*

I have read somewhere some general rules as to why a denture tips, but I can't seem to find them. I have a full denture case in about two weeks. The upper fits nicely around the edges and on the posterior and it has fair suction, but it tips easily when the finger is placed on the anterior teeth.

Could you give me some reasons why it does this?

J. E. C.

ANSWER.—There are four general reasons why an upper denture tilts when pressure is applied on the anterior teeth.

1. The teeth are not over the ridge and consequently there is excessive leverage.
2. The impression of the anterior portion of the mouth was not accurate.
3. Soft, flabby tissue in the anterior portion, or resorption.
4. The lack of proper sealing in the posterior part of the denture, so that there is little or no resistance to leverage.

The trouble in your case may be due to one or a combination of these causes.

*Editor, Practical Hints:*

How long is it best to wait after a full upper and lower extraction is made before proceeding with making plates?

Will you outline, please, your general procedure in cases of this sort? Do you advise making "temporary plates"?

R. I. D.

ANSWER.—The general opinion seems to be that the sooner the dentures are inserted after extraction, the better. Some men are making the plates before the teeth are extracted by cutting the teeth from models and so not permitting the patient to be without teeth at all. An article giving the technic of this procedure will appear soon in THE DENTAL DIGEST.

The term *temporary plates* is rapidly being discarded. All plates are temporary, in that the alveolar process is continually undergoing resorption to a greater or less degree. Of course, the sooner a denture is made after extraction, the sooner it will have to be refitted. That is the only difference. All dentures should be inspected at stated intervals to check up on the articulation and to rebase when necessary.

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*Editor, Practical Hints:*

What do you consider the best thing to do in the case of a boy of fourteen one of whose cuspids, the left, has become impacted as shown in the enclosed radiogram? Is it possible to pull such teeth down into position following the removal of the deciduous tooth, and what sort of an appliance is indicated?

E. C. D.

ANSWER.—I do not believe, in this case, that the cuspid will come down when the temporary tooth is extracted. It overlaps the lateral too much.

The general procedure is to make an incision and drill a hole in the palatal surface of the unerupted tooth, in which a hook or eye is cemented. By means of a ligature the tooth is attached to a fixed arch and brought down by extraction. This operation should be performed by an experienced orthodontist.

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*Editor, Practical Hints:*

Please give me whatever information you can on the use of ethyl chlorid and somnoform as anesthetics.

H. M. F.

ANSWER.—Somnoform is a mixture of 60 parts ethyl chlorid, 35 parts methyl chlorid, and 5 parts of ethyl bromid. Prinz states, "Somnoform is by no means the safest of all anesthetics; a few deaths have been recorded following its use, and as soon as its name disappears from public print it will be forgotten, as it offers no advantage over pure ethyl chlorid."

Ethyl chlorid for general anesthesia is given by a mask, and the method and signs of anesthesia are too lengthy to be given here. You will find a description in any good book on general anesthesia.

In my opinion neither somnoform nor ethyl chlorid is as safe as nitrous oxid and oxygen, and I further believe that no man should be both the anesthetist and the operator. He cannot do justice to either phase of the work, and if anything should happen, he is in a bad position.



*Editor, Practical Hints:*

I have a patient whose bicuspid and molars are very sensitive at the gingivae. Can you tell me how I can stop this without using silver nitrate?

M. L. F.

ANSWER.—Of course, silver nitrate is the most efficient method of overcoming sensitiveness, but if this is contra-indicated, a 10% formalin solution may be painted upon the dry surface of the teeth and burnished with a hot burnisher.

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*Editor, Practical Hints:*

Would you kindly let me know the latest facts in regard to erosion of teeth? Please include treatment of this condition.

S. G.

ANSWER.—Dr. Kirk presents his conclusions on the etiology of erosion as follows:

"I have pursued the study of this case only to the point of determining the presence of lactic acid as the active solvent agent. My study of other cases has gone far enough to warrant me in expressing the belief that the localized cases are produced by the abnormal mucous exudate containing either of the two solvents named" (acid sodium phosphate and acid calcium phosphate). This excess is produced in individuals of the hyperacid diathesis contingent upon suboxidation and accumulation of an excess of carbon dioxide.

Dr. Prinz gives as the best treatment for incipient cases the use of silver nitrate. If the erosion has progressed to any great extent, the places may be cut out a little more and filled.

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*Editor, Practical Hints:*

About five months ago I extracted the upper incisors and cuspids for a man, 60 years of age, which were all the teeth he had in the upper. The rest had been out for several years.

I used novocain solution, put up in ampules, by injecting around each tooth. The teeth came out all right and the gums healed and looked normal and all right.

The patient came in a few days after extraction and claimed a numbness in the gums, and he still claims that they are numb.

Can you enlighten me as to the numbness and treatment?

E. J. H.

ANSWER.—I can offer only one explanation for the occurrence. If you kept your syringe in alcohol, it was not washed out thoroughly

before being used and some alcohol was injected. This would greatly prolong the anesthesia.

Of course, there is a possibility of injury to a nerve, but in any case I think you can safely assure the patient that normal sensation will return in the course of time. There is nothing to do but wait.

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*Editor, Practical Hints:*

I have three or four patients who have developed a stiffness in the muscles or the joint of the mandible, usually on one side only. Some sense a grating sound in movement of the jaw. X-rays show no impacted teeth. Usually many teeth have been extracted in all cases.

Please give me the causes for this symptom and treatment.

L. G. J.

ANSWER.—The symptoms you describe may be due to two things. First, it may be caused by a focus of infection situated in jaws, tonsils, or sinuses. Secondly, owing to the extraction of the teeth the bite may have closed with the result that different strains are placed on the muscles of mastication and the mandible is placed in such a position that its head does not move smoothly in its socket.

In the first case the focus must be found and eradicated. In the second case the bite must be opened until the jaws are in their normal position.



# DENTAL SECRETARIES and ASSISTANTS

## Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of The Dental Digest, 220 West 42nd Street, New York City.

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NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

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*Dear Miss Pierce:*

I am a dental assistant and like my work immensely. I have been at it only six months and of course have not learned all there is to know about the work.

I should like to know what I can do to remove a streaky appearance after I use oil on the dental cabinet. I polish the surplus oil off, but it remains streaky, which mars its whole appearance.

Also, how can I remove rust from the sterilizer?

I have received many useful suggestions from your section in THE DENTAL DIGEST and am sorry that I have nothing to send in to help any one else.

L. Y., Winnipeg, Canada.

ANSWER.—For the removal of the streaky appearance which follows the use of certain polishes, especially on mahogany furniture, you will have to wash off carefully and quickly the coating of oil or grease that has accumulated thereon, using a soft piece of flannel or chamois skin, warm water (not hot), and Ivory soap. Be sure to wring the cloth out well so that it will not slop water, and do a small area at a time, wiping it off carefully with clean warm water and then with a dry cloth. All this must be done as rapidly as possible so as not to injure the varnish.

When the cabinet or other piece of furniture has been cleaned in this fashion, apply a reliable mahogany piano polish, using a small quantity on the cloth and doing a small area, then polishing off briskly with a dry cloth. Do not become impatient, as it will prove a tedious piece of work. You can secure a reliable mahogany polish from any first-class piano dealer.

May I suggest that in polishing any furniture as little polish be used as possible, just enough to moisten the cloth or chamois skin, and be sure that these are clean and very soft or the varnish will become scratched. The usual reason for the streaky appearance you speak of is that too much polish has been applied or a poor grade of polish has been used. This is true also in the polishing of nickel. The best results are obtained with the least amount of polish, not only in appearance but in the fact that much less time is required to do the work, and the task is far pleasanter as one does not get all "messed up" in doing it.

To remove rust from the sterilizer, you will have to give it a thorough cleaning. I am of course assuming that this rust you mention is on the interior. You can use one of the abrasive powders such as are used to polish steel knives and, if the coating of rust is very heavy, an oxalic acid solution, being careful to protect the hands and to remove every trace of this solution from the sterilizer. To prevent rusting, the utmost care must be used in keeping a sterilizer clean. The water should always be fresh. Non-rust solutions are sold to add to the water. In some offices a few drops of oil are added, or vaseline, or paraffin the size of a pea. The objection to these is that they make the water greasy. Bicarbonate of soda or borax also is used to keep the instruments and sterilizer from rusting, but the principal thing is constant attention and cleanliness.

Replying to your statement that you have nothing to send to help any one else, I am sure that you are mistaken. Every day, in every dental office, the conscientious and interested assistant does many things in her service for both dentist and patients that reflect her ability and ingenuity. No two people do things absolutely in the same way and often what seems a matter of course to the one individual would be a revelation to the other. The simplest of tasks to one may be the hardest to another because she does not know of this simple method. The object of this department is to create a medium of exchange of ideas and suggestions, and we appreciate our readers taking advantage of any opportunity it offers.

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*Dear Miss Pierce:*

For the past two years I have been employed in a dental office as a general assistant. I like the work very much, but I realize that my education might be improved and would appreciate your advice.

I did not go to high school following my graduation from grammar school, but took a six months' course in a business school, and I have made up my mind to go to evening school and in this way secure my high school qualifications. Can you suggest some books that I might read that would help me? I plan to enter evening school with the fall term, but in the meantime I should like to do some reading of an educational value.

P. S., Brooklyn.

ANSWER.—You do not tell me what studies you intend to pursue when you enter evening school, whether they will be along academic or scientific lines, therefore it is a bit difficult for me to advise books that might fit in with your plans.

There are many phases to this business that we call *living* and one's education consists of many correlating factors. First and foremost, we should maintain a healthy body if we are to have a healthy mind, and I would suggest that you secure a book or two on hygiene and health, both instructive and interesting, and that you outline a health program for yourself for each day and follow it consistently. Secondly, as food for the mind there are a number of books on psychology (Hollingsworth, Seashore, Kitson, Bisch, Poffenberger and others); then, written for the layman, books on astronomy and bacteriology, and textbooks on philosophy, art, civics, and ethics. As an all-encompassing book, secure Bennett's *Culture and a Liberal Education*. The librarian in your city library will be glad to help you in the selection of books on the above-mentioned subjects. However, in the long run you will come to realize that "book learning" is not all-sufficient for complete living, but that one must possess common sense and the reasoning ability to apply what one has learned from books to the needs of one's every-day life, and that this only comes of the wisdom that is born of experience.

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### **Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.**

The Educational and Efficiency Society for Dental Assistants, New York, held its regular meeting on February 14, 1928.

The essayist was Charles F. Bodecker, D. D. S., F. A. C. D., Professor of Dental Histology and Embryology at Columbia University, whose topic was *The Necessity of Early Treatment of Enamel Fissures Before Decay Becomes Apparent*. Dr. Bodecker discussed his subject from the viewpoint of imparting to his audience such knowledge as will enable the dental assistant to aid the dentist intelligently in the pre-

vention of decay. His lecture was very interesting and instructive, being illustrated by drawings, models, and lantern slides.

Juliette A. Southard, President of the American Dental Assistants Association, New York, addressed the meeting on *The Progress of Our Sister Organizations*. She had just returned from a visit to a number of the constituent societies of the national society, while en route to the Chicago Mid-Winter Dental Meeting, and brought back encouraging news of the classes and clinics being conducted by the assistants in the Middle West.

During February and March a class in laboratory assistance was in session and was well attended. Each student worked on a case and gained not only essential facts concerning this phase of her work but also the skill to apply her knowledge. On March 8, 1928, a class on a proper method of brushing teeth was given, with Dr. Fowler as instructor. The care of equipment was the subject considered by the group which met on March 15, 1928. These classes are conducted by the Society for its members and are held each Thursday evening under the supervision of competent teachers.

At the regular March meeting of the Clinic Club the topic of the evening was *Amalgam, Its Properties, Mixing, etc.* At the April 16th meeting, to be held at the office of Dr. S. R. Eolis, Times Building, New York, a lecture and demonstration on instrument-sharpening will be given.

A group of clinics to include first aid and suggestions for service will be presented by the members of the Club at the New Jersey Dental Society meeting in Asbury Park on April 19, 1928. The Clinic Club meets regularly on the third Monday evening of each month, September to May, inclusive, and all members of the Educational and Efficiency Society are urged to join.

A special musical program has been arranged for the Seventh Annual Dinner at the Hotel Astor on Saturday, April 28, 1928. Several speakers of prominence have signified their intention of being present.

The purpose of the Society is the education of the dental assistant for greater efficiency in her work. Its programs consist of lectures, classes and clinics relating to the duties of the assistant to the dentist and are all held in accordance with the finest ethical code and the highest ideals of service. Its motto is *Greater Education for Greater Efficiency*.

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The regular meeting of the Educational and Efficiency Society for Dental Assistants, New York, will take place at the Academy of Medicine, 2 East 103rd Street, New York, on Tuesday evening, April 10, 1928. An interesting and instructive program has been arranged.

Nominations for officers to be voted on at the May meeting will be in order. Members of the dental profession and their assistants are cordially invited to be present.

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## Montreal Dental Assistants Association

The monthly meeting and Clinic Class of the Montreal Dental Assistants Association was held on February 20, 1928, at McGill University Dental Department.

Dr. Wesley Bourne, anesthetist, chose for his subject *Concerning General Anesthesia in Dentistry*. He dealt first with the history of anesthesia and then turned from ancient applications of drugs to their importance in regard to early surgery. He touched on the bearing of mesmerism on anesthesia.

Dr. Bourne next indicated the origin of the name *anesthesia*. He then displayed a number of slides illustrating dental appliances, especially as they concern the administering of gases for operations, and spoke briefly on the danger of acidosis being produced in the blood after being under an anesthetic. He concluded by explaining the functions of two appliances which he had with him for administering nitrous oxide, acetylene, or ether. These machines constituted the latest model for dental anesthesia and were judged extremely efficient.





## A Testimonial to Dean Thornton Planned by His Friends

The many friends of Dean Thornton will learn with sincere regret that his health has been gradually failing for some time, and that his condition is such as to demand a complete rest and retirement from active work.

Dr. Thornton has given many years of valuable service to his chosen profession, and it is proposed that his retirement be marked by a suitable testimonial from his numerous friends as an expression of their affection and the appreciation of the profession for the valuable contributions Dean Thornton has made to the status and progress of dentistry.

It has been decided by a committee of his personal friends that the testimonial shall take the form of a purse of gold, and that every dentist have the privilege of sharing in this token of good-will toward one of their number who has been permanently incapacitated by illness. Those desiring to avail themselves of this opportunity may do so by forwarding name and amount to \*Dr. A. L. Walsh, McGill University, Montreal, before April 20, 1928.

Dr. Thornton graduated in Dentistry from the University of Toronto in 1890 and practiced for a number of years in Chatham, Ontario. In 1902 he was appointed Professor of Crown and Bridge Prosthesis in the School of Dentistry of the Royal College of Dental Surgeons of Ontario, where he served until 1913, when he was appointed Dean of the Faculty of Dentistry at McGill.

Dean Thornton was greatly appreciated as a after-dinner speaker both in Canada and the United States, and some years ago was honored in being elected President of the American Dental Teachers' Association.

The Thornton Testimonial Committee is composed of Drs. F. G. Henry (chairman), A. W. McClelland, F. H. A. Baxter, J. S. Dohan, D. P. Mowry, Wallace Secombe and A. L. Walsh, honorary secretary-treasurer. A special names committee has been appointed with Dr. Dohan as Chairman.

\* Please make cheques payable to McGill University, Thornton Presentation Fund.



## **March Sees Opening of Medical Center in New York of Which Columbia University School of Dental and Oral Surgery Is to Be a Part**

During the month of March, immediately following the official Opening Day on March 16, 1928, the Presbyterian Hospital began to move into its new quarters. This unit, together with Harkness Pavilion and the School of Nursing, will be the first units to start operating at the Medical Center. Others to follow shortly are the Sloane Hospital for Women, the Squier Urological Clinic, the Vanderbilt Clinic, the College of Physicians and Surgeons, the New York State Psychiatric Institute and Hospital, and the Columbia School of Dental and Oral Surgery. The Neurological Institute of New York and the Babies' Hospital are just beginning construction of their buildings, also at the Center.

The School of Dental and Oral Surgery until now has been situated in downtown New York. This building will be abandoned and the School moved to the Medical Center, where it will occupy the three upper floors of a structure which is to house the Vanderbilt Clinic also. It is an eight-story building, having corridors which connect it with the Presbyterian Hospital and the College of Physicians and Surgeons.

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## **Minnesota—Vacation Land**

Now is the time to think about your summer's vacation. Minneapolis with its surrounding countryside is open to you for the greatest vacation you have ever enjoyed. This summer you can plan to take in the greatest meeting the American Dental Association has ever held and at the same time take advantage of the many recreational facilities that the great State of Minnesota affords its visitors.

In the extreme north, remote and inaccessible except by canoe, extends a vast region of "sky-blue waters" and virgin forests. Here, at our last frontier, you can enter and explore a rugged country of compelling interest.

A little further south, through an area equally as scenic, excellent highways have been built. Here is the vanguard of the famous summer resorts.

Every taste can be satisfied in Minnesota. You will find luxury

and refinement in modern resorts, a carefree western spirit of welcome in tourist camps. You may enjoy the solitude and beauty of the North Woods in some hidden cabin or on a canoe trip; you may rest in a quiet family hotel, or you may frolic at some gay rendezvous.

If you are a fisherman, your choice of ten thousand lakes within the borders of our State is yours for the asking. Every kind of fishing is open to you—pike, bass, muskie, trout and innumerable other species—and your appetite for this great sport *will* be satisfied.

If you are an automobile tourist, you will revel in the countless beautiful highways that we have to offer you. These wide, smooth highways spread in a network all over the State. Millions of dollars have been spent in the last few years in improving and maintaining Minnesota's roads.

If you are a golf enthusiast, you will find many splendid courses in the city of Minneapolis itself, and if you plan to visit one of our world-famed summer resorts, of which there are thousands, you will find many of these equipped with a golf course.

And so from Minneapolis, our next Convention City, seven thousand miles of Minnesota's trunk lines lead to superb fishing spots, camps, resorts, canoe trails through primeval forests, prosperous farm lands—or what do you want?

Plan your vacation now. Write to the American Dental Association Headquarters, 301 Donaldson Building, Minneapolis, Minnesota, for any information you may desire. It is yours for the asking. We have pledged ourselves to entertain you. Drop us a line. Above all,

COME AND BE CONVINCED!

PUBLICITY COMMITTEE.





## New Medical Arts Building in Cleveland

The accompanying sketch represents the new Medical Arts Building to be erected in Cleveland for the exclusive use of physicians, surgeons, dentists and those engaged in related scientific fields. It will be ready for occupancy about May 1, 1929, and the tenants will have their offices arranged according to individual plans and specifications.

It will be a unit in the terminal development at the Cleveland gateway of transcontinental travel and the center of the urban, suburban and interurban rapid transit service. Connected with it will be an eight-story steel and concrete garage having a capacity for 1500 cars.



## EXTRACTIONS



No Literature can have a long continuance if not diversified with humor—ADDISON

Thank goodness! Heaven selected its musical instruments before the ukulele was invented.

(Claude)—So you really want me to visit you?

(Maud)—Yes, please do. I've been terribly lonesome since my goldfish died.

A Scotchman was given a pair of spats for a birthday present. The next day he was seen in a shoe shop having them heeled and soled. "Hoot, mon!" said Sandy, "another guid pair of shoes."

Here rest the bones  
Of Emily Bright;  
She put out her left hand  
And turned to the right.

Little Nellie was running around the house with the cat in her arms, looking for her mother. "Mama," she shouted, "the kitty is hungry, where do you keep the mice?"

Farmers enjoy a speech concerning their poverty. Frequently they drive their high-speed cars forty or fifty miles to hear it. Or, if the weather is not pleasant, they stay home and listen to it over their expensive radios.

"What do you charge for rooms?"  
"Ten dollars up."  
"But, madam, I am a student."  
"Then it's ten dollars down."

A Parisian poet entered a cage of wild lions and read his poetry aloud for half an hour. Not a single lion was missing or injured.

Shun dogma, not knowing the dog.

(She)—My, but this orange juice has a peculiar flavor!

(He)—Sure it has. It is genuine orange juice.

A Southern farmer from the rich Mississippi Delta was traveling through a poor section of the South.

"I don't see how the people here make the bare necessities of life," he said to a local farmer.

"It is hard to do, sir," said the local farmer, "and when they make it it's not fit to drink."

Nature foresaw skyscrapers. The neck is pivoted on a universal joint.

A new roller-skating floor is to be laid in a nearby street. We understand that it will seat about five hundred.

Another advantage Noah had was that he didn't have to bring out a new model ark every year or two.

Eating apples may keep the doctors away, but it started dressmakers in their business.

The only kind of travel that doesn't broaden and improve your intellect is that on the New York subway in the rush hour.

Another need in the world is a suggestive device that will begin to play a harp under the hood when the car hits fifty.

It is easier to dodge an elephant than a microbe.

Politeness is like an air cushion; there may be nothing in it, but it eases the jolts wonderfully.

Astronomers these nights are watching a star blow up. Plain folk are requested, however, not to feel the slightest alarm. The explosion that has just now become visible here occurred ten million years ago.

### THE ROAD TO SPRING

Dancing snow-flakes flutter down  
On the road to spring,  
And all the trees are bare and brown  
Along the road to spring.  
To frosty cold our fare we pay,  
And watch the milestones fade away.  
We're moving forward every day.  
Along the road to spring.

The wind is in a merry haste  
To reach the goal of spring.  
Last night the wind and weather raced  
Upon the road to spring.  
But going at a steady gait  
We're bound to get there, soon or late,  
For every winter, sure as Fate,  
Is just the road to spring!

## FUTURE EVENTS

THE PROSTHODONTIA SECTION OF THE EASTERN DENTAL SOCIETY will hold its next meeting on April 9, 1928, at 8:30 P. M., at the Allied Dental Council Headquarters, 425 Lafayette Street, New York.

Various types of abutments, pontics and stress-breakers will be exhibited in different stages of preparation and construction, simplifying apparent complexities in this very important field of restorative dentistry.

Dr. S. Waterman will be the essayist.

The committee urges an early attendance, since interlinking detailed steps will be demonstrated.

LOUIS I. ABELSON, *Chairman*,  
S. CHARLES GARDINER, *Secretary*.

THE NEW JERSEY STATE DENTAL SOCIETY will hold its fifty-eighth annual meeting at the Berkeley-Carteret Hotel, Asbury Park, N. J., April 18-21, 1928.

Essays—Wednesday and Thursday; clinics—Wednesday, Thursday, Friday.

Essayists: Sherman L. Davis, Indiana School of Dentistry, *Relation of Nutrition to Body Structures*; Edward H. Hatton, Northwestern University Dental School, *Bacterial and Histologic Findings After Present-Day Root-Canal Treatment*; Justin D. Towner, Professor of Prophylaxis and Oral Pathology, College of Dentistry, University of Tennessee, *Periodontal Pathology the General Practitioner Should Detect and Treat*; Weston A. Price, Cleveland, Ohio, *New Fundamentals for the Prevention of Dental Diseases with Special Consideration of Calcification and Decalcification Processes*. Also, many interesting clinics.

All members in good standing in the A. D. A. are invited to attend. Membership card must be shown to prove eligibility for admission to essays and clinics.

THE WESTCHESTER DENTAL SOCIETY will hold its sixth scientific meeting of the season on Tuesday, April 24, 1928, at the Yonkers (N. Y.) Chamber of Commerce, 35 South Broadway, at 8:30 P. M.

The essayist of the evening will be George Wood Clapp, Editor of THE DENTAL DIGEST, whose subject will be *Economic Elements in Professional Success*.

Every interested practitioner is invited to attend.

THE MASSACHUSETTS STATE DENTAL SOCIETY will hold its annual meeting at the Hotel Statler, Boston, Mass., May 7-11, 1928.

RICHARD H. NORTON, JR., *President*,  
15 Bay State Road, Boston, Mass.  
WILLIAM H. GILPATRIC, *Secretary*,  
358 Commonwealth Avenue, Boston, Mass.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its 60th annual meeting at Hotel Syracuse, Syracuse, N. Y., May 16-18, 1928.

Literary exercises, clinics, exhibits, and sessions of the Executive Council will be held at Hotel Syracuse. Make reservations early with the hotel management.

The Executive Council will convene for the transaction of business of the Society on Tuesday, May 15, at 3:00 P. M.

Dr. Daniel Jutton, 405 East Fayette Street, Syracuse, is Chairman of the Exhibits Committee.

Dr. I. J. Silverman, 541 East Genesee Street, Syracuse, is Chairman of the Clinic Committee.

#### LITERARY PROGRAM

- A New Standard for Cranial Measurement*.....E. C. Kirk, Philadelphia, Pa.  
*Waxes and Wax Patterns for Cast Gold Inlay*.....R. H. Volland, Iowa City, Iowa  
*The Physical Deficiencies of Amalgam as a Filling Material may be best understood and corrected when we recognize the material in its true form:*  
*As a Typical Eutectic Mixture Alloy*.....William E. Harper, Chicago, Ill.  
*Important Factors in Successful Denture Service*.....M. M. House, Whittier, Cal.  
*Diagnosis and Treatment of Mouth Lesions*..Chalmers J. Lyons, Ann Arbor, Mich.  
*Partial Dental Construction*.....Edward Kennedy, New York, N. Y.  
 Report of Scientific Research Committee....Charles F. Bodecker, New York, N. Y.  
 Report of Oral Hygiene Committee.....L. A. Timmerman, Amsterdam, N. Y.  
 Report of Board of Dental Examiners.....M. J. Terry, Albany, N. Y.  
 State Department of Education.....S. R. Meaker, Albany, N. Y.

#### TOPICAL CLINIC DISCUSSIONS

Topical Clinic Discussions are clinic sessions without a clinic, having a topical leader and chairman. Each topical discussion will have a separate room. List of questions to be submitted will appear in the final program, issued early in the month of May. The following subjects will be covered:

Full Denture Service	Partial Denture Service
Porcelain Restorations	Amalgam Technic
Gold as a Filling Material	Orthodontia
Oral Surgery	Root Canal Technic
Periodontia	Office Management
Fixed Bridges	Removable Bridges

In addition to the foregoing, well selected table clinics will be presented.

#### ENTERTAINMENT

Thursday, May 17, Fraternity Luncheons.\*

Social dinner, entertainment and dance. Social dinner at 6:30 P. M. at *Hotel Onondaga*, followed by entertainment and dance.

Special entertainment for visiting ladies will be provided during the meeting of the Society.

Special arrangement will be made to care for the automobiles of visitors.

During the meeting of the New York State Dental Society, sessions of the New York State Dental Hygienists Association and also of the Educational and Efficiency Society for Dental Assistants will be held. Very instructive programs will be presented.

A cordial invitation is extended to all ethical dentists of New York and other States and Canada.

For further information and programs address

A. P. BURKHART, *Secretary*,  
 57 East Genesee Street, Auburn, N. Y.



THE VERMONT STATE DENTAL SOCIETY will hold its 1928 meeting at Burlington, Vt., May 23-25, 1928.

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THE VIRGINIA STATE DENTAL ASSOCIATION will hold its annual meeting in the Patrick Henry Hotel, Roanoke, Virginia, May 29-31, 1928.

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THE MINNESOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at the College of Dentistry, University of Minnesota, Minneapolis, June 11-16, 1928. Applications must be in the hands of the Secretary by June first.

F. E. COBB, *Secretary*,  
601 Donaldson Building, Minneapolis, Minn.

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THE INDIANA BOARD OF DENTAL EXAMINERS will meet at 8:00 A. M., June 18, 1928, at the State House, Indianapolis, Ind., in the House of Representatives room, for the purpose of examining all applicants with proper credentials. Applications should be in the hands of the Secretary one week before the Board meeting.

For applications, clinical requirements, and other information, address

J. M. HALE, *Secretary-Treasurer*,  
Mt. Vernon, Ind.

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THE DENTAL ALUMNI ASSOCIATION OF THE COLLEGE OF PHYSICIANS AND SURGEONS OF SAN FRANCISCO, School of Dentistry, will hold its annual meeting at the College on Friday and Saturday, June 22-23, 1928. Preceding the general sessions there will be six different special courses given, among which Dr. George M. Hollenback of Los Angeles will instruct a class in *Inlays and Modern Crown and Bridgework*.

June 21st will be a day of golf. Luncheons, class reunions and a banquet at the Bohemian Club on Saturday evening, June 23, 1928, will be a part of the social side of the meeting. A cordial invitation is extended to the entire ethical dental profession to attend.

FREDERICK T. WEST, *Chairman Publicity Committee*,  
2595 Mission Street, San Francisco, Cal.

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THE NORTHEASTERN MASSACHUSETTS DENTAL SOCIETY will hold its fourteenth annual convention on June 25-27, 1928, at the New Ocean House, Swampscott, Mass. All ethical dentists are cordially invited to attend. Best of clinicians and exhibits, reduced hotel rates, golfing and surf bathing. For particulars, address

HENRY I. YALE, *Secretary*,  
Peabody, Mass.

## SUMMER SCHOOL FOR DENTAL HYGIENISTS—1928

The six weeks' postgraduate summer course for dental hygienists given at the University of Buffalo for the past two years has been transferred to the Buffalo State Teachers College.

The subjects to be given in the course are such as have been found requisite and desirable in preparing the hygienist to present her work in school and to the public generally. They are: Education (Principles of Teaching), Child Psychology, Public Speaking, Applied Oral Hygiene, Sociology and Nutrition. Other related subjects may be elected from those offered by the College. The full course will cover two summer sessions. College credits are given. The staff of instructors, principally from the State Education and State Health Departments, University of Buffalo and State Teachers College, have been chosen for their practical field experience.

This course has been approved by the State Education Department as meeting the requirement for certification as a Dental Hygiene Teacher.

Tuition is free to residents of New York State, and a nominal charge is made to non-residents. Classes are held five days a week from July 2nd to August 10th.

For registration and a detailed announcement of the course, address

DR. S. R. MEAKER,  
State Education Department,  
Albany, N. Y.

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THE AMERICAN SOCIETY OF ORAL SURGEONS AND EXODONTISTS will hold its tenth annual meeting at the Radisson Hotel, Minneapolis, Minnesota, August 17-18, 1928.

HARRY BEAR, *Secretary*,  
410 Professional Bldg., Richmond, Va.

THE AMERICAN DENTAL ASSOCIATION will hold its Seventieth Annual Session in Minneapolis, Minnesota, August 20-24, 1928.

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THE AMERICAN DENTAL ASSISTANTS ASSOCIATION will hold its fourth annual meeting in Minneapolis, Minn., August 21-23, 1928. General headquarters will be at the Leamington Hotel.

JULIETTE A. SOUTHARD, *President*,  
174 West 96th St., New York, N. Y.  
RUTH F. ROGERS, *Secretary*,  
Suite 1760, 16 North Wabash Ave., Chicago, Ill.

